

American Forests *and* Forest Life



April, 1928

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states, and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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CONTENTS

THE COVER

"HOLDING THE FIRE LINE"—Photograph by the New Jersey Department of Conservation and Development

REMEMBERING AN ARBOR DAY

By SHIRLEY W. ALLEN..... 194

THE PASSING OF THE MAINE WILDERNESS

By JOHN C. PHILLIPS..... 195

AN ANCHOR TO FORESTWARD

By JENKS CAMERON..... 199

NAMING THE SEQUOIA

By CRISTEL HASTINGS..... 202

ROBINS AND RUMINATIONS

By GUY W. VON SCHRILTZ..... 206

MAKING OUR LUMBER OPERATIONS PERMANENT

By DEVERE V. DIERKS..... 209

A WILDERNESS CLASSROOM

By R. W. HESTAND..... 212

HOUSE PASSES McNARY-WOODRUFF BILL

214

BANKERS JOIN FOREST CONVERTS

By E. WHEELER WHITMORE..... 215

AMERICAN FOREST WEEK PROCLAMATION

216

PRESIDENT TO BROADCAST FOREST MESSAGE

217

THE PARADISE OF THE CEDARS

By P. L. BUTTRICK..... 218

FIREPROOFING THE GEORGIA WOODS

By I. F. ELDRIDGE..... 221

ON AND OFF THE TRAIL—Pictorial Feature

224

EUROPEAN TOUR PARTY TAKES SHAPE

226

EDITORIALS

227

THE CHINESE ELM—A VALUABLE TREE

By WOODBRIDGE METCALF..... 229

THE RAINDROP FAMILY

By MABEL HOWLAND WHARTON..... 230

SHIRLEY W. ALLEN TAKES UP NEW WORK

232

SNAPSHOTS OF EUROPEAN FORESTS—IV. FINNISH FORESTRY PAYS

By JOHN D. GUTHRIE..... 233

SAPLING SAM'S SCRAPBOOK

236

BOY FORESTERS SERVE DENVER

By DAVID W. THOMAS..... 237

AROUND THE STATES

238

CONSERVATION BILLS IN CONGRESS

243

AMERICAN FORESTS AND FOREST LIFE invites contributions in the form of popular articles, stories and photographs dealing with trees, forests, reforestation, lumbering, wild life, hunting and fishing, exploration or any of the many other activities which forests and trees typify. Its pages are open to a free discussion of forest questions which in the judgment of the editor will be of value in promoting public knowledge of our forests and their use. Signed articles published in the magazine do not necessarily reflect the views of the Association. Manuscripts must be accompanied by return postage. Editorial and Publication Office, The Lenox Building, 1523 L Street, Washington, D. C.



Remembering an Arbor Day

*Y*OU will come back someday and see a great tall, spreading tree here in this corner of the school yard. Then you will be proud to remember that you were here today and that you helped to plant it."

I can remember those quiet words and the kindly eyes of the teacher who spoke to us on an Arbor Day out in Iowa thirty years ago. And I can remember how impatiently we waited for him to finish so we might be dismissed to play a little earlier than on the other days.

And one of the things that I remember most, is the brown earth and how fresh and clean it smelled as each of us pushed a spade full about the sapling's crooked roots.

But today I have rested under a great elm, and my heart is full of thankfulness that I was one who helped to make it grow. How many it has shaded! How truly blessed is that time in spring that we call Arbor Day!

--Shirley W. Allen

The Passing of the Maine Wilderness

By JOHN C. PHILLIPS



SCARCELY a hand has lifted, scarcely a voice of protest raised, while one of the great assets of the State of Maine has slowly leaked away. Leaked away while the good folks of the state sat complacent in their rocking chairs through long summer afternoons, lulled into dreamland by newspaper and railroad fiction about the "pathless" forest; its bears, wolves, and rampagous moose. They get a little thrill, these sedentary folk, by hearing of the impossible exploits of Joe Knowles, who penetrated the Maine wilderness, unclothed, for a Boston paper and levied tribute with his mighty bow and mightier club for, goodness knows how

many days. Or they see a picture of "Adam and Eva," who tried to astonish the news-reading public by a similar feat, wrapped up in a mere romantic envelope, nothing more.

No, in spite of these abortive attempts to prolong the Maine wilderness myth, the wilderness itself has practically passed, and now as we write it is too late to stay the tide of—shall we call it progress or destruction. Have it either way you will. But some day the people will speak up and ask what has happened. They will do this for economic reasons, if for no other, because they will see what other states and regions are doing, they will see what Canada has already done, and they will show their wrath and repent at leisure. There is plenty of time for that.



A Maine hillside which a few years ago was covered with virgin growth. It was lumbered for pulp but even before the cut was removed to Lobster Lake, shown below, fire wreaked its vengeance upon it. The whole mountain is now a series of bare granite ledges with scarcely soil enough to grow a crop of wild raspberries

Now a wilderness such as Maine once had is a priceless heritage for various reasons. It serves as a water storage area for great rivers, as a perpetual garden for the growth of forests and as a playground. The capital resources of any wilderness can be expended along with the interest, and this is what has happened in Maine. I can only sketch a train of events that has been going forward at an ever-increasing rate of speed, and mention some of the things I have seen with my own eyes or heard on the best authority.

The most valuable wilderness playgrounds are of necessity those nearest large centers of population, and in this respect Maine surpassed all the rest of the East with one exception, the Adirondacks. Maine contained almost intact

not so many years ago a huge farmless elevated plateau cut with an unrivaled system of inland waterways that extended from the Moosehead Lake region to Fort Kent on the St. John River, a canoe country, if ever there was one. But none

of this little paradise was held by the state; it had all long before been sold at what now seem ridiculous values, or given away in various grants to individual or corporate bodies.

The history of the disposal of these wild lands is rather

a long story and is plainly set forth in the report of the forest commissioners for 1908. The importance of the timber was of course not recognized in early days, and even after Maine became a state in 1820 there was little accurate knowledge about the northern and eastern portions. Grants were given to the widows of soldiers in our early wars instead of pensions, while payments for all sorts of civic development were made wholesale by selling land. The price realized on some tracts was only eleven or twelve cents an



The untouched wild—Maine's priceless heritage. Scarcely a hand has been lifted, or a voice of protest raised while what might have proved her greatest asset has slowly leaked away. But some day, the author asserts, the people will ask what has happened

acre, although the average price 125 years ago was about twenty cents. There were many grants to colleges, schools and churches. By 1835 the state-owned lands were being rapidly reduced and there was much speculation in those

already disposed of, for the value of white-pine stumpage had gone up with a bound. The state also suffered great

Now see the result of the trusting nature of the good people of Maine. They have sold their thousand-armed



lakes, their crystal-sparkling rivers and their darkly fringed mountain tops for a mess of pulp wood and they have got little enough out of that even. I do not know the figures, but I can guess that much of the benefaction from the stock dividends of the pulp companies goes outside the state. And nowadays nine-tenths of the rough work of the woods is done by French Canadians, who carry their earnings back with them across the St. John. And the worst of it is that owing to the absence of restrictive statutes the present-day "pulpers" cut spruce and balsam almost down to the size

A scene of desolation supreme — a typical flowage basin on the Penobscot River. Lovely waterways changed into miles of dismal swamp lands where only the bull-frogat evening chants over the wreckage

losses from the timber cut by lawless elements from across the St. John River in New Brunswick; so serious in fact did this become that an armed force was sent to the border in the winter of 1838-39.

Out of eleven or twelve million acres in 1813, Maine by 1868 had only about one million acres left unsold and at that time saw fit to convey 700,000 acres to the "European and North American Railway

Company." This practically ended the transfer of state lands and the small parcels were sold by auction in 1875 and 1878.



Bleaching "dry-ki"—the grinding bones of the old shore forest, where now the canoeist can scarce find a spot to beach his craft. Think what it would have meant if state legislators had preserved the old wilderness along the shores of the principal waterways

of your wrist and at several times the rate that it can reproduce, even under the most favorable of conditions.

But we are interested here in tracing the rape of the wilderness. We are interested in showing how what might have been one of the most valuable assets of northern Maine has vanished. Vanished, as far as we can see, forever. The history of lumbering in northern Maine carries us back more than 100 years. Even in Thoreau's time, the choicest white pine had mostly been culled out from the more easily lumbered regions near waterways, and had floated down the Kennebec, the Penobscot and the St. John. But methods were crude, the temporary log dams were built only strong enough to hold back the water until the spring drive was out, after which the ponds resumed their natural levels, or nearly so. Spruce and balsam was not valuable enough to cut because the white-pine market was still being supplied from Canada and the Northern States, including Michigan.

By and by came the period of spruce logging. Even this was not utterly destructive, because at first, say up to twenty-five or thirty years ago, only the finest spruce was removed and the forest soon recovered if no fire followed in the wake of the cutting. More dams, of course, were built, but waters were not always impounded through the winter and the loggers were content with moderate flowages and moderate mill power. It is true that much fire destruction took place in this period as well as long before, because there was almost no system of fire prevention and serious outbreaks occurred, one of the worst of which was the great East Branch fire.

But the discovery that paper could be made from spruce and balsam crowded almost all other lumbering in Maine to the wall and the whole state, particularly the Penobscot watershed, has been producing four foot pulp logs and almost nothing else for twenty years, an industry the importance of which few realize, for about one-fourth of all the newsprint pulp of America is cut in the Maine forests. This shift to pulp logging of course speeded up the whole process of forest harvesting and soon began to change the face of nature to an extent never before imagined. The great paper mills needed an enormous and continuous supply of water to turn their wheels, in winter as in summer, and so more and greater dams were constructed and thousands of acres of forest disappeared under the waves.

Where now the beautiful beaches, the feathery larch and cedar swamps? Where now the cool spring brooks around whose mouths the angler could cast his fly? Gone forever, and replaced by miles upon miles of bleaching "dry-ki," the grinding bones of the old shore forests, where a canoeist can scarce find a spot to beach his craft. And away up the river spread the flowage, changing lovely water-ways, delight of camper and fisherman, into miles of dismal swamp.

It is useless to go on listing the lakes and streams which have lost almost all their charm and recreational value, as well as most of their fishing. Such a catalogue would fill weary pages. Sufficient to call attention to the fact that of all the large lakes of northwestern Maine none save Allagash and Lobster Lake retain a wholly natural shoreline. I am afraid that plans for the ruin of Allagash are on foot. The wonder is that they have delayed so long. And Lobster Lake would have been flowed out years ago

except that nature's architects made its shore so low about the outlet that a dam would have to be a mile or so long to impound its waters. It looks, therefore, as if Lobster Lake is safe for a few years, unless they flow the main river below its outlet.

So much for dams; quite enough to weary the patient reader. How now about the effect of all this on fish life? It is a notable fact, although I cannot go into the ecological explanations, that a pond once flowed usually ceases to be a good pond for trout. It seems that temporarily you may get a short period of good fishing, even improved fishing, but the final result is poorer fishing, unless strenuous artificial means are resorted to. As to fish-ways around the hundreds of dams which impede the inland waterways of Maine, I have never seen one, although a few exist. Absence of fish-ways is one more reason for the disappearance of trout, and surely this is inexcusable.

Flowage areas, therefore, soon cease to have any interest to the vacationist. The waters of the lakes become warmer and trout are supplanted by baser fish. The mouths of the entering streams are choked with floating "dry-ki" and are no longer attractive or even fishable. And the streams themselves, owing to heavy cutting or burning, or perchance to both, are discharging less water and warmer water. But the picture does not stop here. All the little natural features that most please the eye along the lake margins are gone; the white sand beaches, the grassy lined coves where the deer come down to revel in the lily pads and escape the flies, the miniature rocky headlands, crowned by lonely old pines; all these have vanished. Persons who have never seen a northern wilderness lake untouched by the ax or unaffected by water barriers cannot of course begin to appreciate what they have lost, because they do not realize the magnificence of a primitive shore line with virgin pine and overhanging white cedar shadowing the beaches. Perhaps in this very inability to appreciate such persons are fortunate, but to those others whose senses are attuned to the finer values of the wilderness the present spectacle is nothing less than heartbreaking. Think what it would have meant if state legislators could have been forward-looking enough to limit flowage basins within reason and prevent cutting along narrow strips of the shore lines of the principal waterways. A belt seventy-five yards in width would have insured for all time the most important scenic feature of this wilderness. Just think what posterity could boast of if someone had possessed the foresight to realize that we did not have to run all the pulp wood out of Maine in a lifetime, did not have to do it by the most barbarous and cheapest of methods? Imagine what it would mean now if the state had stepped in and said, "We will take this strip of river bank for a state forest and we will log it by conservative methods, even if it does not pay us 100 per cent. We will be content with five or six per cent return and in the meantime we will preserve a canoe route that will be the joy of our citizens and an inspiration to thousands from distant states. And we will keep the forest intact to pass on as a heritage." But let us forget this idle dream.

(Continued on page 232)

An Anchor to Forestward

How America Tried to Grow Trees for Sail of the Line at Santa Rosa

By JENKS CAMERON

JOHN QUINCY ADAMS, like many practical men, was a dreamer of dreams. He dreamed of a great American merchant marine carrying American products to the far shores of the Seven Seas and fetching back to the ports of the young republic the precious stuffs of strange and distant lands.

and back of that dream was another—

a dream of tall men-of-war of staunchness and number calculated to give pause to the covetous desire that this ocean-borne prosperity was bound to engender in the hearts of pirates and potentates; gentlemen who dwelt at opposite ends of the social scale, yet react to the main chance in fashions that are startlingly similar.

But Mr. Adams, being a practical dreamer, dreamed out his dreams to their logical conclusion. For the three-deckers and the seventy-fours that he visioned beneath the Stars and Stripes he visioned also the stuff they were to be made of. That stuff was wood, for in the twenties the world

was still several decades away from the knowledge of how to put to sea in iron tea kettles. And back of the wood Mr. Adams visioned the forests it was to come from—forests that were to constitute an everlasting guaranty that America should never lack a navy by reason of a lack of the raw

material that was indispensable in those days to a navy's making. In short, he proposed that America should play safe in its navy policy by putting out an anchor to forestward. Which is how it came about that Santa Rosa be-

came our first National Forest and forest experiment station, with Henry Marie Bracken-

ridge for its first forester. It is just a few months short of an even century, as these words are being put down, since this experiment was begun.

The records of it that have come down to us are too meagre for the reconstruction of a perfect picture in all its details. We know enough, however, to enable us to piece together a not hopelessly inaccurate idea of what took place on that peninsula in Pensacola Bay, in 1829 and 1830, and of the salient characteristics of those who were in charge of the operation. Let us consider,

for example, Brackenridge himself, from the standpoint of his fitness for the work for which President Adams and his Secretary of the Navy had chosen him. Was he the best man, all things

considered, who could have been secured for the job at that time? In the writer's opinion he was, though the writer comes considerably short of considering Henry Marie Brackenridge either a great man or a great forester.

Brackenridge's own opinions as to the latter point are



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The "Constitution"—Pride of the Navy in 1812—In this, his second article, Mr. Cameron continues the story of America's early efforts to grow live oak

worth going into here, not only for the illumination they shed upon the character of that somewhat quaint individual, but also because they give, in their detail, a few vivid peeps at what his subsequent handling of the live-oak experiment must have been like. Let us first take a look at a letter he wrote to Secretary of the Navy Southard, from Pensacola, on March 21, 1828. It will help the reader to comprehend this communication if it be explained that Brackenridge had been in Washington some six weeks earlier, and had joined with Colonel White, the congressional delegate from Florida, in disposing of their holdings on Santa Rosa peninsula to the Government. This was done in order that the Government

might have uninterrupted ownership and control of the entire tract upon which the experiment in live-oak growing and preserving was to be made. Brackenridge wrote:

"On my arrival here, I found my orange trees, together with a variety of exotic fruit trees, from the West Indies, which I had not seen for a year, had grown beyond my most sanguine hopes, and are become exceedingly interesting and valuable, but, if removed, I fear, will perish. Having reared them from the seed while a solitary hermit, it is not surprising that I should have an attachment to them; they are my children. The situation which they occupy first struck me as very peculiar: it is impossible for me to meet with one at all comparable, being protected on the north by a sheet of salt water five miles wide, and a thicket of live oak and pine of a mile in depth, with an exposure to the sea on the south. In fact, it is the only spot I can find suited to my trees, the culture of which has constituted my amusement for five years. Several of my orange trees and lemons are now in bearing, and others soon will be. The thought of being separated from them is distressing to me, and I blame myself for the inconsiderate act of disposing of them on the discouraging accounts I received from the person who formerly occupied the place, whose only object was to furnish an excuse for going away. But to what does all this lead? In a word—it is this: if it be not too late to reconsider our contract, and allow me to reserve the few acres

which contain my house and my favorite trees and shrubs, I will yield the rest of the land, with all the live oak, for the consideration already paid me; and I assure you that this is a very small compensation. I fear, Sir, I may appear whimsical and ridiculous, but we are strange beings, fearfully made, and the happiness or misery of our lives is very

differently compounded. There are associations connected with this spot which render it extremely painful for me to think of leaving it. What they are would be fitter for the story of romance.

"The reservation of one little solitary orange grove can be no injury to the general plan of cultivating the live oak; my buildings and improvements would be of



An aerial view of Santa Rosa Island where President Adams ordered acorns from the live oak planted to grow trees for ship timbers, and where Henry Marie Brackenridge established the first forest experiment station in America

little or no value to the Government; they are not such as it would construct if it were necessary to construct any. The residence of one family here would be an advantage. It would be my interest to keep out the fires. In fact, it is owing to the extraordinary pains I have taken, for the last five years, to keep out the fires, that the thickets have grown up so much in my vicinity. If it is possible to gratify my feelings in permitting me to retain these trees, which are now so beautiful, and which I have reared with so much pains, it would be conferring a cheap happiness on a simple kind of being, who, instead of pursuing the road of avarice or ambition, has preferred the cultivation of an innocent and elegant taste."

A few lines further on in the same letter, the Judge got down to the real kernel of the matter he was unfolding to the Secretary:

"Perhaps," said he, "an agent may be wanted by the Government to superintend and direct the plantation of live oak, who has made the subject of the cultivation of trees his study; and, if I might speak of myself, I will venture to say that none has been more successful in this country. I have imported from England some of the works on *plantations*, as they are called, and the study and practice has, for several years, been my favorite amusement. Although I do not pretend to be equal to Solomon, for this would be vanity and vexation of spirit, yet I may say with truth, that there is no tree or shrub in this country with whose history, prop-

erties, and habits I have not an acquaintance. If I could be permitted to remain in possession of my little Elysium as the agent, or an agent to superintend the whole experiment of preserving the live oak, I shall be content. I know nothing of speculation; I have no desire to sell to individuals; my only wish is the privilege of passing the few gliding years of a life already half accomplished amid the harmless creation of my own hands. The superintendence would be an amusement to me, sufficient to compensate for the trouble."

Whether it was the appeal contained in this somewhat touching epistle that moved President Adams and Secretary Southard to decide to put Judge Brackenridge in charge of the experiment, or whether the persuasiveness of the Judge's friend Colonel White, had most to do with it—that is a question which would be hard to answer today. It does not matter greatly which it was. Both probably had something

and the keeping of accurate statements of the progress on this point for future use."

Further, he was authorized, as the superintendent, "to take such measures as may be necessary to prevent fires, and trespasses of every description," being reminded at the same time that it was "important that these measures be as little harsh and violent as the nature of the objects will permit." The importance, too, of making the experiment pay for itself as far as possible was impressed upon him, he being directed to endeavor to sell the large quantity of wood which it was anticipated would be cut in clearing away the pines, hickories, water oaks and other trees from around the young live oaks. Despite his offer to perform the work gratis, with the "amusement" it would afford him his only compensation, he was given a salary of \$400 a year, and was authorized to employ an overseer at \$500 a year. It



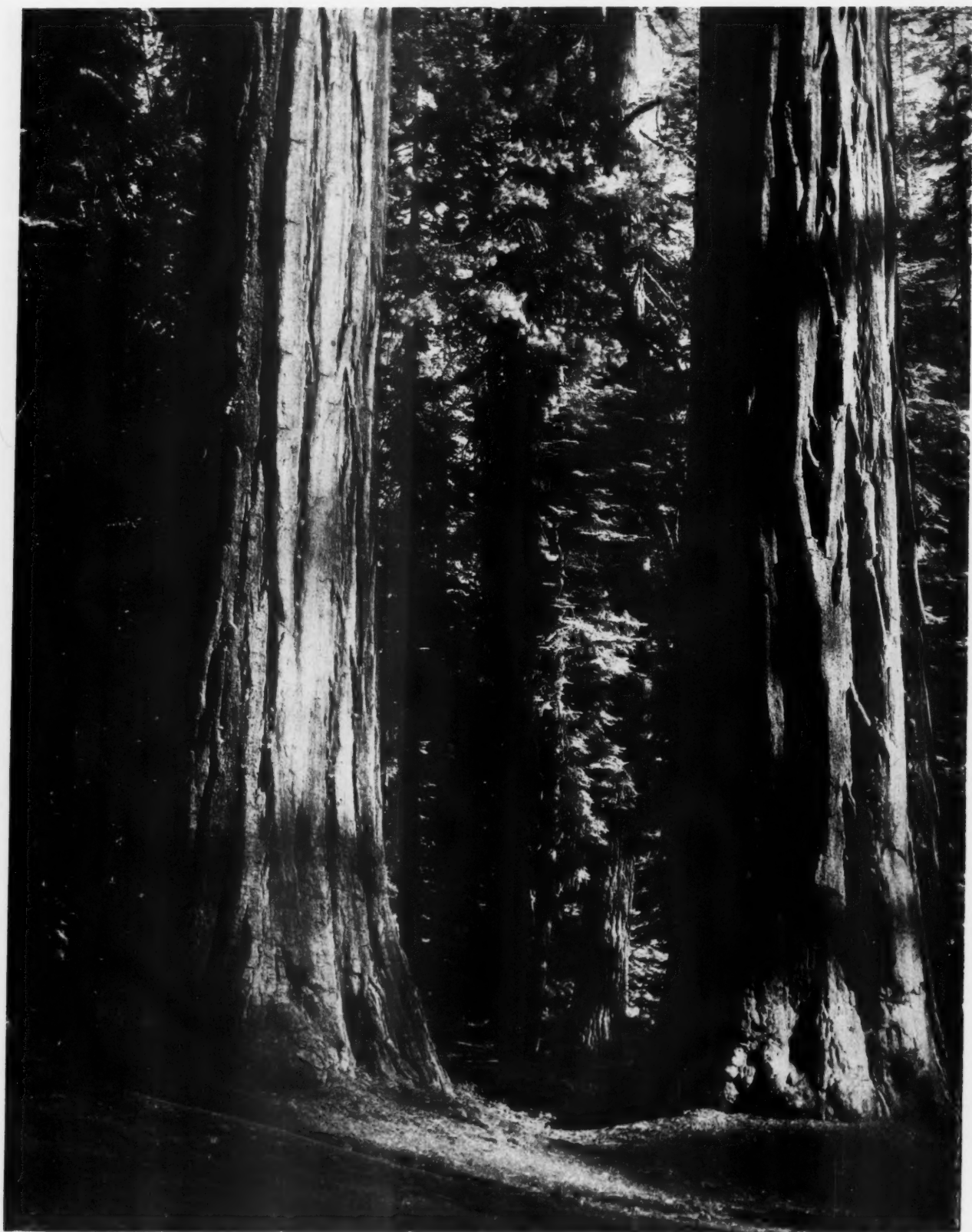
Gallant remnants of sail of the line timber. A grove of live oak at Santa Rosa as it appears today, just one hundred years after President Adams ordered them planted for the sea defense of the nation

to do with it. The point is that the decision to appoint him was made in July, 1828. For some reason, however, he was not apprised of it until the following December. In the letter formally appointing him he was advised that it was desired that his efforts should be directed towards—

"First, the clearing out of the ground on which live oak was already growing, so as to give it the best opportunity for increase. Secondly, the planting of young trees; and thirdly, the selecting of a favorable spot of two hundred or more acres, and the planting of the acorns upon it, in such a manner as to make the most satisfactory experiment,

may be that his tender of free services was not accepted because the government did not feel inclined to accede to his request to reconvey to him the spot with associations "fit for the story of romance." The government did, however, assure him, in a letter written by Secretary Southard a week after his appointment as superintendent was announced, that the twenty acres surrounding his home should remain permanently under his control "so that he might cultivate and derive the profit from it"—which was, of course, merely one of those assurances that sound beautiful but do not assure. Actual work on the great experiment was begun at Santa

(Continued on page 235)



Photograph by John Kable

The storm of controversial opinion in the scientific world raged for years round the naming of these glorious and unmindful trees, from the time of their discovery early in the 19th century until Decaisne, the French botanist, pointed out the relationship of the Redwood and the Big Tree, and referred to the latter as *Sequoia gigantea*. Concession of this point was made by a majority of American naturalists and as *Sequoia* it has been known ever since

Naming the Sequoia

By CRISTEL HASTINGS

PLANTS, like races of human beings, must be named and classified scientifically in order that interminable confusion be avoided in subsequent records of history.

In botany the first name given a newly discovered tree or plant in point of time becomes the unalterable rule. If question or confusion arise, priority decides the issue. Another botanical rule concerning the naming of specimens is that such name shall be printed in an accredited publication, otherwise it will not receive scientific recognition.

The history of the *Sequoia* is surrounded by a vast degree of confusion, misunderstanding, and regrettable controversy in the matter of naming the species. Probably no plant the world over has been the nucleus for more blind dissension among naturalists than the Big Tree of the high Sierra.

During the early gold days of California, the *Sonora Herald* published what appears to be the first newspaper account of the Giant Sequoia, or Big Tree. This was shortly after the discovery of the Calaveras Grove, near Sonora. This account was reprinted in the *Echo du Pacific* of San Francisco, and later reprinted in the *London Athenaeum* under date of July 23rd, 1853. Scientists are in agreement that the latter reprint was the first mention of the tree to appear in any European publication.

Intermittent and scant as these few published accounts were, they proved sufficient to excite and arouse botanists in America and abroad. Early in 1853 the California Academy of Sciences in San Francisco received specimens of the Big Tree, hauled down from the hinterland of the high Sierra at the expense of great toil and time. But even the Academy of Sciences, having no record or reference available on the tree, was unable to publish a proper scientific description of this most amazing plant. An

attempt was made to ship specimens east to Botanists Gray and Torrey, but, unfortunately, these were lost en route over the Isthmus of Panama.

In the meantime, William Lobb, a seed collector from England, saw specimens of the mammoth tree and promptly voiced his opinion that the species was entirely new to science. Securing a quantity of cones and foliage of the Sequoia, together with bits of its

wood, Lobb departed with these for England late in 1853. Lindley, an English botanist of no particular name or eminence, subsequently came into possession of these specimens. *Gardner's Chronicle*, dated December 24th of the same year, contained his hasty description, thereby accrediting an English botanist with the first scientific description of the Giant Sequoia in any written language. It is to be regretted that American naturalists allowed this rare opportunity and honor of naming this tree of remarkable characteristics to slip by unheeded. In his description, published after viewing the specimens of wood, cones and foliage which Lobb hurriedly had taken to England, Lindley entirely overlooked the close relationship of the Big Tree of the Sierra to the coastal Redwood already scientifically described at that time, considering the former "an entirely new coniferous form . . . an evergreen of a most imperial aspect," and calling it *Wellingtonia Gigantea* in honor of the Duke of Wellington, who had been dead but a year and whose greatness had not yet ascended to its zenith in point of historical time.

Lindley went on to write: "We think that no one will differ from us in feeling that the most appropriate name to be proposed for the most gigantic tree which has been revealed to us by modern discovery is that of the greatest of modern heroes. Wellington stands as high above



"A sacred presence overbroods
The earth whereon we meet,
These winding forest paths are trod
By more than mortal feet."

—Whittier

his contemporaries as the California tree above all the surrounding forests. Let it, then, henceforth bear the name of *Wellingtonia Gigantea*."

But Lindley's bestowal of essentially a British name on essentially an American tree immediately became the beginning of a storm of protest and agitation on the part of American botanists. Botanical rules were promptly upset with a swift display of enmity that grew to be of international record, and the already published designation by Lindley was entirely disregarded. American botanists banded together and botanical nomenclature became a byword in the instance of the Big Tree. Naturalists in America became bent on substituting the good American name of *Washingtoniana* for *Wellingtonia*.

A wordy war raged back and forth over seas and continents, while in the high, white altitudes of the Sierra stood the Big Tree, swaying to gentle winds, serene and calm in its majesty, entirely oblivious to the tempest its discovery had brewed in the learned world somewhere far beyond its lofty vision.

In the *California Farmer* of August, 1854, Winslow gave vent to a most caustic rebuke, which is evidence of the high riot of feeling that raged about the sudden discovery and naming of the new plant. He stated in part: "As Washington and his generation declared themselves independent of all English rule and political dictation, so American naturalists must, in this case, express their respectful dissent from all British scientific stamp acts. If the Big Tree be a *Taxodium*, let it be called, now and forever, *Taxodium Washingtoniana*. . . . No name can be more appropriate; and, if in accordance with the views of American botanists, I trust the scientific honor of our country may be vindicated from foreign indelicacy by boldly discarding the name now applied to it and by affixing to it that of the immortal man whose memory we all love, and honor, and teach our children to adore."

In September, 1854, Asa Gray published an account stating that the already discovered Redwood of the California coast and the Big Tree of the higher reaches did not differ enough to warrant the classification of a new genus, adding: "The so-called *Wellingtonia* will hereafter bear the name imposed by Dr. Torrey, namely, that of *Sequoia Gigantea*."

But diligent search failed to disclose any evidence that Torrey had published his description, and the war of words continued.

But on June 28, 1854, there had been held a meeting of the *Societe Botanique de France*, in which the brilliant French botanist, J. Decaisne, discussed at length the relationship evidently existing between these two, the maritime and the mountain evergreen—the Redwood and the Big Tree. Decaisne believed them of the same genus, and, in compliance with botanical ruling, referred to the Big Tree as the *Sequoia Gigantea*. His opinion of the relationship of these two species was favored as correct by American naturalists. Therefore, the appellation *Wellingtonia* definitely fell into the discard, rules notwithstanding, and the name *Sequoia* became recognized in its place.

But no sooner was this momentous question decided for all time, than other troubles began to cloud the happy horizon of the Big Tree. Fantastic guesses were hazarded regarding the obscure and mysterious origin of the word *Sequoia*. This caused yet another botanical storm



The "Grizzly Giant"—Patriarch of the Big Trees and one of the greatest of the tribe *Sequoia*

to brew. There was a great diversity of opinion, and many ridiculous but well-meant theories were offered from among men of learning as to its derivation.

The war of nomenclature roared back and forth. The hitherto peaceful life history of the coastal species, the Redwood, came into the inglorious limelight of dissension. It was Jepson's claim that the Redwood was first collected in 1791 by one Thaddeus Haneke. The second botanist to collect the Redwood is reputed to be Archibald Menzies,

a member of the famous Vancouver Expedition. Specimens of Menzies' collection came to the attention of Lambert, an English botanist of good renown, who considered it of the same genus as the Bald Cypress, and accordingly, in 1824, published the Redwood as *Taxodium sempervirens*. But this designation was disregarded scientifically, and twenty-three years later the Redwood came into its own and was definitely recognized as a distinct genus. This was in 1847.

Late in the same year Endlicher, an able Austrian scientist, made definite establishment of the genus *Sequoia*, and the Redwood has been known to the world ever since as the *Sequoia sempervirens*.

But, again, Endlicher erred, making no statement whatever as to the origin of the word *Sequoia*. In his *Pinetum* it was Gordon's thought that the word was probably a derivation from the Latin word meaning "sequence," basing his opinion on the supposition that the Redwood was "a follower or remnant of several colossal species."

One guess seemed as good or as ridiculous as another. Con-

fusion continued to reign over the emerald boughs of the most sublime tree that ever stood in peaceful places.

Then along came Koch, who was inclined to hold Gordon's opinion in light estimation, claiming the word *Sequoia* to be entirely fanciful. But De Cancellolle believed it to be

purely of obscure California origin, probably some native word written more or less correctly.

So much guess-work and hazy opinion only served to further becloud the horizon, and bewildered scientists found themselves all at sea in the nomenclatural battle that surrounded this most marvelous of all plants.

But as time went on the storm gradually died down, and common sense that had been woefully lacking replaced the medley of guess-work with which the history of the genus had been surrounded.

Finally, Hooker and Englemann vouchsafed an opinion, and expressed their sturdy belief that Endlicher must have been familiar with the colorful life history of the greatest aborigine who ever lived, the Cherokee Indian, Sequoyah, and had, accordingly, bestowed his evident derivation of the Cherokee name on the tree whose serene majesty reminded him of the magnificent savage who groped through the illiterate years of his life to give his people the first alphabet.

And this solution among scientists has been accepted as

the final word in the tempestuous series of events that followed discovery of the Big Tree and the proper naming of the *Sequoia* for all time. This was a lasting tribute to the Cherokee who stood as high above his brood as did the Big Trees above the primeval forest when first found by the white man.



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Send photographs of unusual merit and beauty to the Editor,

AMERICAN FORESTS AND FOREST LIFE

Lenox Building, Washington, D. C.



Mr. Robin, like a true gallant, took his turn on the nest, relieving the little mother bird, who had put in hours of duty day and night in the downpour of the cold April rain

Robins and Ruminations

By GUY W. VON SCHRILTZ

"The robin and the lintie,
The laverock and the wren,
Them that herries their nest
Will never thrive again."

—Scotch Proverb

THOSE lines remind me of "Windy". Wassop. "Windy's" real name was J. Ferdinand Wassop, and his stylish and somewhat affected young mother rebelled with all her might at the nickname. I recall several very vivid scenes starring the irate lady wherein she vented her refined wrath upon the neighborhood youngsters. But her efforts were in vain. "Windy" he had become, and "Windy" he remained as long as I knew him—which was until the Wassops went East about the time Windy was a gangling youngster of twelve years.

But it wasn't Windy's name the poetry reminded me of. Rather it was his habit and methods of collecting bird eggs, a habit, by the way, which Mrs. Wassop encouraged in her only son, because it tended to keep him out of the house and from under foot. That was her chief concern for Windy in those days, as I remember it.

Windy was one of those thin-faced youths who look well in hats with turned-down brims. I used to think that he looked like one of the great golden eagles which soared high in our prairie heavens. Often in my younger days I would ride up on one as it sat upon a fence post.

As I grew older, however, I decided that it was not an eagle which Windy Wassop so much resembled, but a buzzard. My memory pictures him squatted beside a prairie-chicken nest, his face and neck vulture-red from blowing an embryo chick through the hole in the end of an egg. Children are frank and Windy was a good blower, both literally and figuratively, which had much to do with his nickname.

In the room over the Wassop carriage shed Windy kept strings of bird eggs, boxes of bird eggs, and glass showcases full of bird eggs. There were hundreds of them. For he was not a collector who was satisfied with one egg of each species. He craved quantity, and boasted, I remember, among his vast horde, one-half orange crate full of bob-white eggs, some hundreds of prairie-chicken eggs, and so many turtledove eggs. When I recall it now I am ashamed that there ever was any hesitancy upon my part in recognizing the vulture strain in his make up.

Now, we had no robins on the prairies. I have a distinct recollection of the first robin redbreast that I ever saw. I was at Kansas City, where I had gone with some carloads

of cattle, and had just parted with a yellow pommel-slicker to a stockyards employee in exchange for an Irish setter. When the cattle had been unloaded and sold, this setter and I rambled out southeast into the residence district. A rather slow-flying bird braced himself upon a closely clipped blue-grass lawn, which seemed beautiful to me after the brown winter prairie grass I had left at home.

That bird was bracing himself because he was rearing back upon a big worm which he had pulled halfway out of the sod. The bird reared and reared while the worm stretched and stretched. The new dog and I were interested spectators. Like the chapter, the worm finally ended and the bird flew with it squirming in its beak.

That bracing bird was a robin, and I was distinctly disappointed because that far-famed breast of his was not red. That is, it was not as red as the cardinal, or the spots on the black-bird's wing.

Neither did we have linties out where the buffalo grass stretched away. I don't know what a lintie is, but I know that we had none. Wrens also were few and far between out in the plains country, but we did have the laverocks—the larks. One of my earliest recollections is that of sitting in a prairie schoolhouse, my mind miles from my McGuffey's Second Reader, while the meadow larks told me that spring had come. They found a receptive listener in me. I loved them. I love them still, and I find that I can whistle their lilting calls as readily as I could when I was twelve.

The meadow lark is a happy fellow, singularly emblematic of the optimism of the prairies, and infinitely too much beloved by prairie peoples to be maligned as he is in some regions. I never think of those long strings of meadow-lark eggs in that room over the Wassop carriage house without profound regret that so many song birds were so senselessly slain before birth.

Of course Windy did not take his collection of bird eggs with him when he moved away. The purpose of the egg

collecting had been accomplished, and once more the high-heeled shoe of maternal authority came firmly down, and the eggs went into the ash barrel.

The next personal connection I had with a robin was while I was a junior in law school. The bathroom of our fraternity house looked out upon a great wide-spreading elm. One morning in early April my attention was attracted to a small boy who scooted out along a horizontal limb of that elm tree toward a bird's nest. The window stuck and the boy had all the eggs from that nest in his shirt pocket before I could attract his attention.

But that boy didn't get away as easily as all that. I missed my criminal law class that morning, waiting at the foot of that elm for him to make up his mind to come down to me, thereby saving the life of three robin redbreasts. True, the egg which the boy broke upon my bare head was lost, but he carefully replaced the other three in the nest when I promised him amnesty if he would do so.

There is a fallacy afloat that if the eggs of wild birds are touched by human hands the parents will abandon them. I have seen this disproved countless times. If the robins which built that nest in our back-yard elm resented the handling the boy had given their eggs they never betrayed it; yet both of them were flitting about that boy with distressing cries all the time he remained in the tree. The instant he was upon the ground the mother took her place upon the nest. She even laid another egg, I



The youngster, just about ready to fly, cogitates in which direction to take off for his first flight

noticed next day, and the nest again contained four.

Two days later I discovered the same boy hiding behind a large lilac bush bombarding the robin's nest with a "nigger shooter." I slipped down to the kitchen and counter-attacked from the right flank with an air rifle belonging to our colored cook's small son.

The operator of the slingshot was very much surprised when my first shot knocked the dust out of his overalls. Surprise gave way to a pained expression as a second shot

stung his seat. Consternation and alarm swiftly followed when the flanking fire continued, until the enemy discovered me and my weapon and fled in disorder. It was a rout.

I think this second attack on the nest was more in the nature of revenge upon me than any deliberate desire upon the part of the boy to harm the robins. I frequently saw him after that, swinging along, whistling, usually closely followed by a disreputable dog. He was not a bad boy. That whistle and that dog proved his nature to my satisfaction, and I began to contemplate how best to take him into partnership with me in raising those robins. He always avoided me, however, crossing over when he met me on the walks, usually honoring me with a grimace or a grin when I attempted to be chummy and talk to him. Just

imagine my surprise one day when a drab little lady led him up to our front door.

"I just this morning learned that this boy of mine has been bothering you young gentlemen," she said.

When I looked into her concerned brown eyes I forgot the drabness of that little lady

and before I had talked to her one minute I had discovered that she was a real mother. She and that boy, whose eyes began to shine with eagerness and friendship, went out with me to look over that family of robins. Then I dug up

some photographs which I had taken of the nest, eggs and birds, and the boy was plainly interested and intrigued.

Almost every day after that Don came over. We sat for hours watching and photographing those robins. I could almost see the love for Nature grow in him. He became a self-appointed nurse and bodyguard for the nest and its occupants. He found other bird nests for me and led me to them, and he began reading books on birds which I checked out at the library for him.

One morning at sunrise I heard a dull thud as a missile struck the side of the house. Another thump and a tinkle of glass followed. With visions of a raid upon my robins I jumped out of bed to find Don stoning a lean alley cat from the elm which contained the nest. He was much ashamed of his aim and

quite disconsolate at the broken bathroom glass, which he insisted upon paying for by mowing the lawn.

He sympathized with the mother bird as she sat upon the nest for hours in the cold April downpour, drooping, drenched, and bedraggled, yet faithful to her task. He was full of schemes



Don carefully replaced the three eggs in the nest and almost immediately the mother resumed her place upon them, her alarmed cries stilled



Though only two days old, these lusty young robins are an emphatic living answer to that classic question, "Who WANTS the worm anyhow?"

and suggestions for constructing some protection for her. He clapped his hands and was immoderately pleased when the father bird took a turn on the nest at the first let-up in the cold, penetrating April downpour.

(Continued on page 245)

Making Our Lumber Operations Permanent

How the Dierks Lumber and Coal Company Is Placing One of the Largest Bodies of Controlled Timber in the World Under Forest Management

By DEVERE V. DIERKS

IN the natural order of our economic progress, the development of forest management has been inevitable.

When the restless movement of a pioneering people brought the early Americans from the Atlantic colonies westward in search of newer and greater opportunities, the forests of the great middle section of our present nation were real obstacles to the profitable development of this section.

Timber had no intrinsic value. Thousands of trees were cut down and burned, where one was used, in order that the lands might be placed into condition to produce the most elementary of human wants—food.

Early lumber manufacturers had no thought for conservation of timber. Indeed, the competition of nature itself was a factor which completely eliminated any possibility of profitable conservation of timber.

In the last decade, however, a condition has come about which

has resulted in widespread interest in forest management, not only among timber owners, but also among the citizens as a whole. Until these conditions were brought to the attention of timber owners, the importance of forestry was a term which meant very little to the average lumberman. He did not understand the practical application of the principles of forestry to his individual case, and therefore

assumed that, if there was "anything to forestry," it was for the other fellow. This general lack of understanding of practical forestry on the part of the lumberman has resulted in a more or less widely practiced policy of denuding timber lands for the immediate profits that were to be had, with utter disregard to permanency of operation.

Among the factors which have served to favorably call to the attention of lumbermen the importance and need of forest management



The Dierks Lumber and Coal Company believes that the growing of trees is as fundamental as the growing of crops. Its vast holdings in Arkansas and Oklahoma have been under intensive forest management for five years

has been the increasing value of stumpage, due to the diminishing supply in territories within reach of their operations; the necessity of abandoning costly mills to seek new supplies of timber; the fact that, in most localities, lands from which timber was removed were practically valueless except for timber cropping; the effect of intensive competition, making it unprofitable to manufacture the smaller trees, which, if left standing, would make merchantable timber at a later time.

In the case of the Dierks Lumber and Coal Company, in Arkansas, a realization of the possibilities of practical forestry did not come until we found that lands which we had cut over twenty and twenty-five years ago, merely through the fortunate circumstance of not having been destroyed by fire, had developed a second cutting of commercial timber. Lands which we had sold as cut-over twenty years previous we were buying back as timber land, on a basis netting the owners at least interest on their investment.

There can be no question as to the wisdom of a policy of facing squarely a situation which is inevitable, handling it in accordance with the needs of the problem rather than having it thrust upon you at a time when, perhaps, the solution would prove to be most difficult.

By facing, five years ago, the issue of our future supply of timber, the company was able to arrange a cutting and fire prevention system—a very essential factor in any plan of forest cropping—so that a workable plan of handling its timber supply could be evolved.

There is one related factor in the consideration of the

practice of forestry which I would like to touch upon here.

The owners of most of the large lumber companies are men of such an age that they can hardly expect to reap directly from the benefits of forestry. In our case, we were most fortunate in that the president and vice-president

of our companies, although men well advanced in years, were willing to forego immediate profits in order to establish their operations as a creative business rather than a destructive business.

Once the company was convinced that by the practice of forestry its operations could be changed from a roving industry to one of permanence, it became apparent that the entire nature of its operation plan would have to be changed.

We established a program of selective cutting, patterned along the lines of the plan used in the National Forests of Arkansas; a fire protective system which would effectively cope with the ever-present fire hazard; revised the estimates of our logging railroad needs, and embarked on a plan of securing the co-operation of the settlers in our community in making our operations a permanent industry.

The State of Arkansas, in which lies practically half of our holdings, has no recognized forestry program, so that they are

unable to obtain any funds from the Federal Government. The burden of maintaining our fire protective system in that state falls wholly upon the company. Oklahoma, fortunately, has an organization, and half of the expense there is borne by the Federal Government. In Oklahoma, our protective system, which covers 1,312,000 acres, calls for



The cutting plan of the Dierks Company calls for a twelve inch diameter limit. This old longleaf pine comes down, but fifty trees of from seven to eleven inches are left to the acre

the maintenance of 315 miles of telephone line, the operation of four look-out towers, the employment of twenty-six wardens, as well as the operation of fire trucks and a \$5,000 annual expenditure for educational purposes, consisting principally of the use of motion pictures, the distribution of literature, and talks to school children. A similar plan is followed in Arkansas, where we have 150 miles of telephone lines, two towers, and thirty-three wardens. We have cooperated with the tower and protective system of the Arkansas National Forest in a way that has added to the efficiency of their work and ours. We established a research department to classify the different types of lands for the purpose of determining the normal rate of growth which might reasonably be expected in each locality, the result of this study to be used to determine our cutting plans. Plots, varying in size from one-tenth of an acre to one-fourth of an acre, were established on various sections over the holdings to show the variable conditions of topography, soil, and, consequently, growth. The data collected on each plot involved a one hundred per cent tally of all trees by diameters, and of a sufficient number of trees for height, diameter, and age. With this basic data, and by the use of volume and yield tables, much valuable information was compiled.

Our investigation shows that it is desirable to leave fifty or more trees to the acre, of seven, eight, nine, ten, and eleven-inch diameter. A cutting standard of twelve inches was established, and, where young timber was dense, it was better to thin this by removing a portion of the trees, down to ten inches, or even nine inches.

The company established a practice of having its wardens in the various districts protect the timber by removing dead trees which might infect growing timber. Incidentally, its cutting practice is one under which it cuts all infected timber which has fungus growth at the time of cutting, regardless of size.

The combined forests of the Dierks Lumber and Coal Company, and its principal subsidiary, the Choctaw Lumber Company, and those of the Federal Government in the territory contiguous to our operations, constitute one of the largest bodies of controlled timber in the world.

It would be difficult to estimate the ultimate value of this



A part of the fire protective system of the Dierks Company. In addition to the employment of fifty-nine wardens, five look-out towers are maintained

national resource to the people of the United States. It is not hard to visualize that in years to come the volume of merchantable timber on this combined acreage will be greater per acre than it was fifty years ago. The practice of burning over the woods is one of great destruction.

Not only is it destructive to sound standing timber, but it also tends to discourage the young growth. Even before this country was settled, burning of the timber occurred through natural causes, such as lightning. Therefore, we feel that forest management will result in increased crops of timber. Our practice of selective cutting, forest fire prevention, and reforestation has had one notable effect upon our organization in that it has engendered more confidence in the minds of our employees as to the stability of our organization. At this time it is not possible to determine with any degree of accuracy whether or not the plan which we are following will result in sufficient financial gains to repay our expenditures. We started the practice because we have faith in the people of this country. We know that if forestry is to become a vital factor in modern lumber manufacturing operations, the enactment of remedial legislation which will permit timber owners to carry out a program of this kind is essential. For, indeed, if the

timber resources of this nation are to be perpetuated for future generations, the entire burden should not be placed upon the shoulders of the timber owner. Timber cannot be grown for scenery—there must be an eventual profit for the grower.

The business of growing trees is as fundamental as the growing of crops. There is this difference, however: Farm lands are usually taxed on the basis of the value of the land. Timber lands are taxed on the basis of the value of the crop. Timber is a crop which is harvested once in twenty-five years. It is manifestly unfair to expect the timber grower to pay twenty-five annual taxes, carry the load of accumulated interest on this and on his investment, the cost of protecting the timber, and then take chances of striking an unfavorable market when at last he converts his timber into lumber.

This is a new problem. That it will receive the earnest thought of and necessary action from our Government leaders we have no doubt. In the meantime, we intend to "carry on," secure in our faith in the wisdom of our plan and the people of this nation.



The first two cubs were apt pupils, climbing rapidly and looking back as if to say, "Catch us if you can!"

ALL morning I had been lying upon the soft, pine needle floor of the vast Sierra wilderness, gazing, dreaming, wondering at the maze of thick clustered peaks that rose like cathedrals around me.

Patches of snow gleamed on the mountain sides, shaded from the sun. In places, the walls of the great Tuolumne Canyon were draped with sheets of ferns, moss and vines that hung like great pieces of tapestry. I gazed wonderingly at the terraced walls where fell crystal streams and cascades of exquisite blossoms. Sky blue larkspur, patches of brilliant paintbrush, and the rich gold of monkey flowers, seemed to hang poised before me like curtains of richly wrought mosaic. A golden tangle of sunlight glittered through the white aspens and their delicate, quivering leaves were reflected in the waters of Harden Lake.

Turning my head to watch a humming bird poise on vibrating wings above a purple larkspur, I heard the snapping of a twig and caught sight of a swaying fir tip. There, not twenty feet away, and studying me intently, was a huge black bear. I remained perfectly quiet. Then she reared upon her hind legs and uttered a sound I have never heard before, the danger signal that all wild things give when an enemy is near. "Uh! Uh!" Like a moan of human dis-

A Wilderness Classroom

By R. W. HIESTAND

trepreneur, I had heard the mountain quail give the same warning in a more musical way when I came unexpectedly upon her brood in the fading twilight.

Now the woods seemed filled with strange bawlings, which reminded me of a frightened calf. The old bear dropped to the ground with a menacing growl that sent chills chasing up and down my spine. The bawling continued, and when she stepped to one side I beheld three small cubs, looking for all the world like animated teddy bears. Now I knew why the old bear did not run. It became evident, too, that she wanted to come down the trail. She moved several paces nearer. The bawling of the cubs increased in rapidity and the grunts of the mother increased in volume. She was coming down the trail. Now, I am not afraid of bears; however, I did not dispute her right to the path, and treated her with the respect any gentleman would show a lady with three little children. I deliberately stepped aside.

The little fellows kept close to the old bear. The mother instinct of preservation was most noticeable in her; her fears were for her family only. I followed at a discreet distance, and was rewarded for my efforts a hundred yards or so down the trail. Believing herself alone with her family, she proceeded to give her children their first lesson in tree climbing on the first sizable tree she reached. In her discipline she was a teacher of the old school. Corporal punishment was frequently resorted to with telling effect. In her teaching she followed the latest pedagogical theories. She always gave a demonstration of the thing to be done.

Putting her paws against the tree, she looked at the cubs and gave a low grunt. Then she started to climb. When she reached a limb she walked out on it, sat down for a short time, then came hitching down to the cubs. Again placing her paws against the tree trunk, she uttered a low sound, as if to say, "I did it, so can you." One of the cubs started to climb, but the distance seemed too great. He backed down to the ground again. No sooner had he landed than a great paw crashed against the side of his head and he went rolling over in the dust. Whimpering, he got up and ran to the tree as fast as his little legs could carry him. In a short time he had climbed to the first limb. Cub No. 2 was an apt pupil and started up on his own accord, but the distance frightened him also. He descended, but she was at the foot of the tree to meet him. She used corporal punishment for everything. She had a temper like a buzz saw, and her feet were quicker than her temper. She gave him a shove with her paw that sent him scrambling up the tree. He was soon on the limb beside the other cub.

But cub No. 3 was neither apt nor active. He was either contrary or just a plain ignoramus. Watching him for awhile, I concluded that he was both.

The old bear gave her signal, but the little fellow made no move toward the tree. He was grabbing at a dangling fir-tip just like a playful kitten. Discipline he needed and it was forthcoming, for the old bear flew at him in a rage. She uttered a deep warning before giving him several pats on the head with the back of her huge paw which wakened him from his dream. He whined, scratched his burning ears with his paw, and ran to the foot of the tree. The mother climbed part way up again, but he would not follow. Coming down, she lifted the cub with her paws and placed him on the tree trunk, holding him with one paw while she paddled him with the other. After much bawling and many cuffs, he found he must obey. He was soon on the recitation bench beside the others, holding on for dear life.

The following day I had a chance to witness two sights not commonly seen in beardom.

Gazing out over the lake toward a boggy meadow, I marveled at the blue expanse of wild camass that stood so thick it simulated another lake. There were tinges of purplish pink, the rosy glow of the Shooting Star, scattered on its rippling mass of blue.

My attention was called from the flowers to a deep, "Uh!" It was the old bear again. I slipped noiselessly through the azalea bushes toward the sound. Parting the branches, I beheld a strange sight. Sitting upright on the ground, her paws spread protectingly around her nursing cubs, she kept vigilant watch. One of the cubs was sitting on her thigh. All three of them showed that the keen mountain air gave them good appetites. Presently the old mother gave a grunt which probably meant, "dining room closed, no more meals served," and rose on her hind legs.

Thinking the woods free from danger, she gathered her



Sitting upright on the ground, her paws spread protectingly around the nursing cubs, the old mother kept vigilant watch for the first sign of an intrusion

inquisitive bundles of mischief around her and started for the lake. She began making her anxious call as she neared the water. To a sort of a sheltered cove into which the sunbeams stole, she took them. Then, wading out into the lake, she began to send the water flying over her back in a perfect shower of sparkling drops. Climbing out on the bank, she marched straight toward the cubs. They did not like cold water any better than some other children I have known. They began to bawl, but she paid no attention to them. Her warning was not heeded. But when she made a quick move toward them, they ran toward the water and two of them waded in and began splashing about. No. 3, however, the stubborn one, stood on the bank looking fearfully down at the other two. The old mother gave him a slap with her paw, but he failed to move.

Determined, she urged him forward with her paw, until he stood, bawling loudly, on the edge of the water. Then, without hesitation or ceremony, she pitched him into the lake. I was so amused by the quaint performance I let out a loud cry, which broke up the swimming lesson. Like a flash the mother whirled in my direction and grunted a loud signal which plainly meant, "Take to the trees." Instantly three animated brown bundles climbed ashore and literally flew to the large two-leaved pine standing near the lake. Lesson No. 1 had not been forgotten.



Billy had never learned the value of property rights, and after one of his careful inspections a car was likely to look as if a tornado had struck it!

Weeks later on another occasion I ran across this same family, learning to dig for the bulbs of the blue camass. The time had arrived when it was necessary to teach the cubs self reliance. Wading out into the blue camass bed, the old bear began to dig. For a minute or two she made the black muck fly around her. Then she ate several of the sugary, onion-like bulbs and gave a sample to each of the three cubs, and soon there was much activity in this charming meadow.

Of all the animals that still roam the remaining wilderness, none is more interesting or shows more intelligence than the bear. I have been studying their habits for many years and learn something new each time I come in contact with them. They are more interesting and show more individuality in their ways than any woods animals I know.

Once, while working with the United States Bureau of Roads, I had a novel experience. A huge brown bear appeared at camp one afternoon with two cubs about one-fifth grown. One was black, the other brown. The instant they saw us they took to the trees. We decided to catch one of them and keep it for a pet, so a campaign

was agreed upon. Two of the men were to arm themselves with ropes and when the cubs came down they were to lasso them. After many attempts they succeeded in getting the rope over the black cub's head, but like a flash the little fellow slipped out of it.

The brown cub had climbed into a tall, diseased fir tree, and as the tree was partly dead we decided to cut it down. But would you believe it? As the tree came crashing down,

the little brown rascal ran like a flash to the end of a branch, seized a limb of a standing tree and left us all our trouble for nothing.

The black one had gone into another tree with a dead top. The tree was probably sixty feet high. I decided to climb up and chop him out. When I made a few strokes about ten feet below him, the cub growled menacingly and came down toward me. I poked his ribs with the handle of the ax, forcing him up again. Soon the top began to sway and one more blow found the bear sailing through the air on his brown parachute. When the top came to within about eight feet of the ground he jumped off, landed on his back, and was off like a flash before the boys came up. We never tried catching them again. They had earned their freedom. There was once a bear in Yosemite Park

called Billy, who came from another school. He was one of the most inquisitive of all bears. Many were the cars he explored for food. He was the most interesting and amusing menace I ever knew. He had a sort of sixth sense and could immediately distinguish between friend and enemy. He would pose in prayerful



The climbing class over and sensing no danger near, the mother bear gathered her three bundles of mischief round her and started for the lake for the final lesson of the day. Did the cubs like the water? They did NOT. Read and see!

attitude for a taste of honey or bacon. He was a perfect gourmand, and had never been taught property rights, and when he got through his explorations for food some of the cars looked like a tornado had struck them.

But in the great school of the wilderness the survival of the fittest is the rule, and if we care to turn the pages of the book of Nature, we will be amazed beyond telling at the knowledge we glean.

HOUSE PASSES McNARY-WOODRUFF BILL

On March 14 the House passed the McNary-Woodruff bill. Congressman Roy O. Woodruff of Michigan, John C. Ketcham of Michigan, James B. Aswell of Louisiana, William F. Stephenson of South Carolina, Elbert S. Brigham of Vermont, and John D. Clarke of New York spoke briefly in favor of the measure. The legislation as passed was the Senate draft of the bill, S. 1181, with the House amendment cutting down the forest purchase program to two years at \$2,000,000 a year. It will now go to conference with a good chance to reach a compromise program covering a longer period than two years. The Senate passed S. 1181 February 6, 1928. It is expected that the bill will be in the hands of the President before April 1.

Opposition in the House to the ten year program is based on the report from the Bureau of Budget that a plan covering more than two years would be in conflict with the President's financial program. Widespread support of the McNary-Woodruff bill and vigorous effort on the part of all of many organizations and individuals has made it one of the best understood measures before Congress.

Bankers Join Forest Converts

Realization That Forests Are "Flood Insurance" Arouses Financial Interests

By E. WHEELER WHITMORE

ONE BILLION DOLLARS! That constitutes the descriptive way of presenting the grim features of the recent Mississippi flood to the financial interests of this country.

This billion is not reckoned as a loss, resulting from the inundation of 18,000 square miles and property damage estimated at more than a quarter of a billion dollars. It represents an investment and embraces the cost to reforest devastated areas adjacent to the tributaries of the Mississippi, for the construction of spillways and the erection of a more adequate system of levees. Fifteen years ago this same program could have been completed for \$300,000,000.

Another tragedy has recently been enacted in another section of our country. Sections of New Hampshire, Vermont, Connecticut and Massachusetts have been swept by a devastating flood. Industry was completely paralyzed, and property destroyed is estimated at more than \$50,000,000.

As details of this catastrophe was flashed to me by newspaper correspondents, I pictured swollen streams rushing heedlessly on their mad and unchecked courses; I saw great textile mills helplessly crippled; I visualized the men in the electric power plants struggling vainly to keep pumps and dynamos going. I pictured the puffing iron horses of the railroads unable to bring assistance to thousands of destituted families on account of washouts and flooded roadbeds. In fact I saw the glorious achievements of man, the constructive work of several decades, dissipated in a few hours.

Because investment banking houses in New York, Boston and Chicago have issued securities against industrial and public utility property, located in these afflicted areas, the heads of these organizations are slowly but surely realizing that forests are "flood insurance." Floods, they agree, eat into gross revenues and net income, as well as jeopardize dividend disbursements.

Take the case of the Missouri Pacific Railroad as an example. During the first quarter of 1927 bankers entertained hope that the management would declare an initial dividend on the \$71,800,100 of five per cent cumulative preferred stock outstanding. The tracks of the Missouri Pacific run parallel to the Mississippi from St. Louis to New Orleans, and the road during the flood period suffered heavy losses not only in traffic, but also to its roadbed and equipment. As a result preferred dividend hopes have for the moment been dispelled.

As a matter of fact, operation on the roads serving the Mississippi area was suspended from ten to one hundred and twenty days, and the estimated physical damage to the carriers is placed at \$10,000,000. But bankers have estimated traffic losses at figures ranging from \$10,000,000 to \$30,000,000.

Coming within the same year the New England flood left a deep impression upon bankers. A loss of \$50,000,000 cannot hardly be stood, especially at a time when textile mills are formulating readjustment plans, and when such roads as the New York, New Haven & Hartford and the Boston & Albany are striving to improve their credit positions. The banking fraternity has now realized that trees have a potential value, both to agrarian and industrial America.

Heretofore investment bankers have been prone to disregard the forest feature. While the nation was expanding industrially, and while there were thousands of acres of virgin forest land, there was practically no reason to worry about the future. Operating costs, profits, or losses, were scrutinized from a balance sheet viewpoint only. With flood after flood undermining their investments, however, bankers are now lending a sympathetic ear to the forester.

Some may take issue with me on this point; some may declare that I am exaggerating the matter. But according to figures compiled by investment bankers there are more than \$400,000,000 of private capital invested in the securities of water companies. As far as these companies are concerned rainfall is the sole effective capital of the country. They are not only interested in the storage and sale of water, but also in maintaining, so far as possible, an equalized flow throughout the year. This flow can only be equalized, it is admitted, through a constructive reforestation policy.

Big business is looking ahead. Forests are now to be reckoned in computing earnings as well as economic conditions. Bankers and industrial executives alike are demanding immediate action on the Mississippi flood control program. They have learned through experience that the swift run-off of water is responsible for great floods with their appalling havoc and widespread misery. They now admit that reforesting of waste lands along the watersheds of rivers is one means of prevention. A rainless year would dry up more than half of the lesser rivers in the United States.

Insure against a recurrence of flood catastrophes. This is a new departure in business, but, nevertheless, it is coming to pass. "For years we have been carrying on," a well known investment banker and director of several industrial concerns told me, "without including the tree in the general set up of our organizations. But as we have changed our manufacturing methods, so we are changing our attitude toward the doctrine preached by McGee, Pinchot and Garfield."

The financial growth and industrial expansion of this nation is closely allied with our forests. Continue to cut them without replanting, continue to lay thousands of acres bare each year without regard to the future, and it becomes only a matter of years before that growth and expansion will have been thwarted.

AMERICAN FOREST WEEK

A Proclamation

BY THE PRESIDENT OF THE UNITED STATES

"**F**OR several years a special week has been set apart for public discussion of our forests and of what must be done to safeguard and restore them. Among the agencies making for progress in this direction, American Forest Week has proved its usefulness and I am glad to proclaim it again and to announce that Canada is again concurrently observing a similar week.

"The rehabilitation of our forests demands first of all that the forest fire evil be suppressed. Many of the forested States, with the cooperation of timberland owners, have undertaken organized protection against forest fires; and in recent years, under the Clarke-McNary law, the Federal Government has given its support to the movement. This great cooperative enterprise must be extended and strengthened until every forested county in the United States is safeguarded against forest fires.

"But we are still far from the goal of complete protection. Every year, on the average, 80,000 fires scourge our woodlands, steadily undermining their vitality. For this bad situation, the blame falls equally on us all. Public agencies rarely provide adequate protection against fire, the timberland owner is too often indifferent to his property, the forest worker is too often neglectful of the future forest, the average citizen is too often careless with fire in the woods. We must all gain such respect for the forest that its destruction through indifference or carelessness shall be unthinkable.

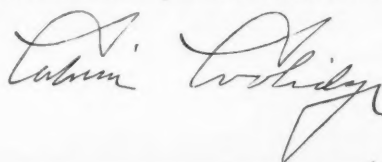
"We can not permanently abuse our forests with impunity. The soil is the ultimate source of all our wealth and of life itself. One-fourth of our American soil is best suited for forests. Much of this land is already idle. More of it is being made idle by destructive logging and fire. Yet we can not safely permit our forest land to lie fallow and useless any more than we can permit our farms and factories to lie idle.

"To make our vast empire of forest land fully productive of continuous crops of timber will have momentous consequences in our national life. It will give agriculture the advantage of a new and valuable crop. It will afford permanent employment to millions of men in the forest industries. It will provide raw materials for many industries. It will furnish traffic for our railroads. It will maintain foreign and domestic commerce. It will restore our forests as conservers of soil and water, and as givers of health and pleasure to our people.

"We already have made a beginning in forest renewal; but the task is stupendous, and we should permit no satisfaction over what has been done to blind us to the magnitude of what remains to be done.

"Now, THEREFORE, I, CALVIN COOLIDGE, President of the United States of America, do hereby designate and set aside as American Forest Week the week beginning April 22 and ending April 28, in this year of 1928. I recommend to the Governors of the various States that they also designate this week for special observance by all our people; and that where practicable and not in conflict with law or custom, Arbor Day be observed during the course of the same week. I urge that during that week all citizens and appropriate organizations—including public officials, legislators, business organizations, educators, editors, clergymen, landowners, and others—give thought to the preservation and wise use of our forests, to the end that energetic forest policies will be adopted in all communities."

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed. Done at the City of Washington this fifth day of March in the year of our Lord one thousand nine hundred and twenty-eight, and of the Independence of the United States of America the one hundred and fifty-second.



President to Broadcast Forest Message

*Association's Meeting at Washington to Feature
"American Forest Week"*



CALVIN COOLIDGE

President of the United States of America

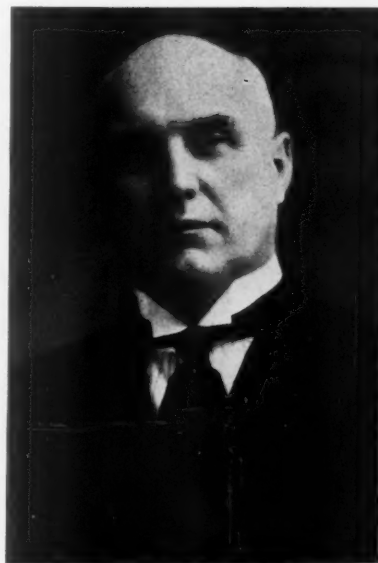
PRESIDENT COOLIDGE is actively assisting in making this year's observance of Forest Week an outstanding success by broadcasting his Proclamation on Monday evening, April 23, at 8 o'clock, eastern standard time, direct from the White House. Through the courtesy of the National Broadcasting Company, the President's forestry message is to be made available to America's radio audience from the stations on the company's "red network."

Honorable Charles Stewart, Minister of Interior of the Dominion of Canada, will immediately follow President Coolidge on the air, thereby adding an international flavor to the evening's program.

Louise Homer Stires, one of the country's most talented sopranos, will complete the half-hour program with a group of songs appropriate to American Forest Week. Her willingness to contribute her services to the cause of forestry helps to make the radio program one of the best balanced and most worthwhile events ever offered to the radio audience.

On the evening of Monday, April 23, The American Forestry Association will hold an American Forest Week meeting in Washington at the "Hall of the Americas" in the new building of the Chamber of Commerce of the United States. Honorable Charles Stewart, Minister of Interior of Canada, with which country the United States is concurrently observing Forest Week, will be the chief speaker of the evening.

Mr. Stewart has had a notable career in Canadian affairs for the past quarter of a century. As Minister of Interior he is the executive head of the department that has under its jurisdiction the forests of Canada, as well as other public lands, mines, parks, water power, and other natural resources. He is also Superintendent General of Indian Affairs in the Government of Canada. His residence is in Alberta, of which province he served as Premier before entering the cabinet at Ottawa. Mr. Stewart's personal knowledge of forest problems



CHARLES STEWART

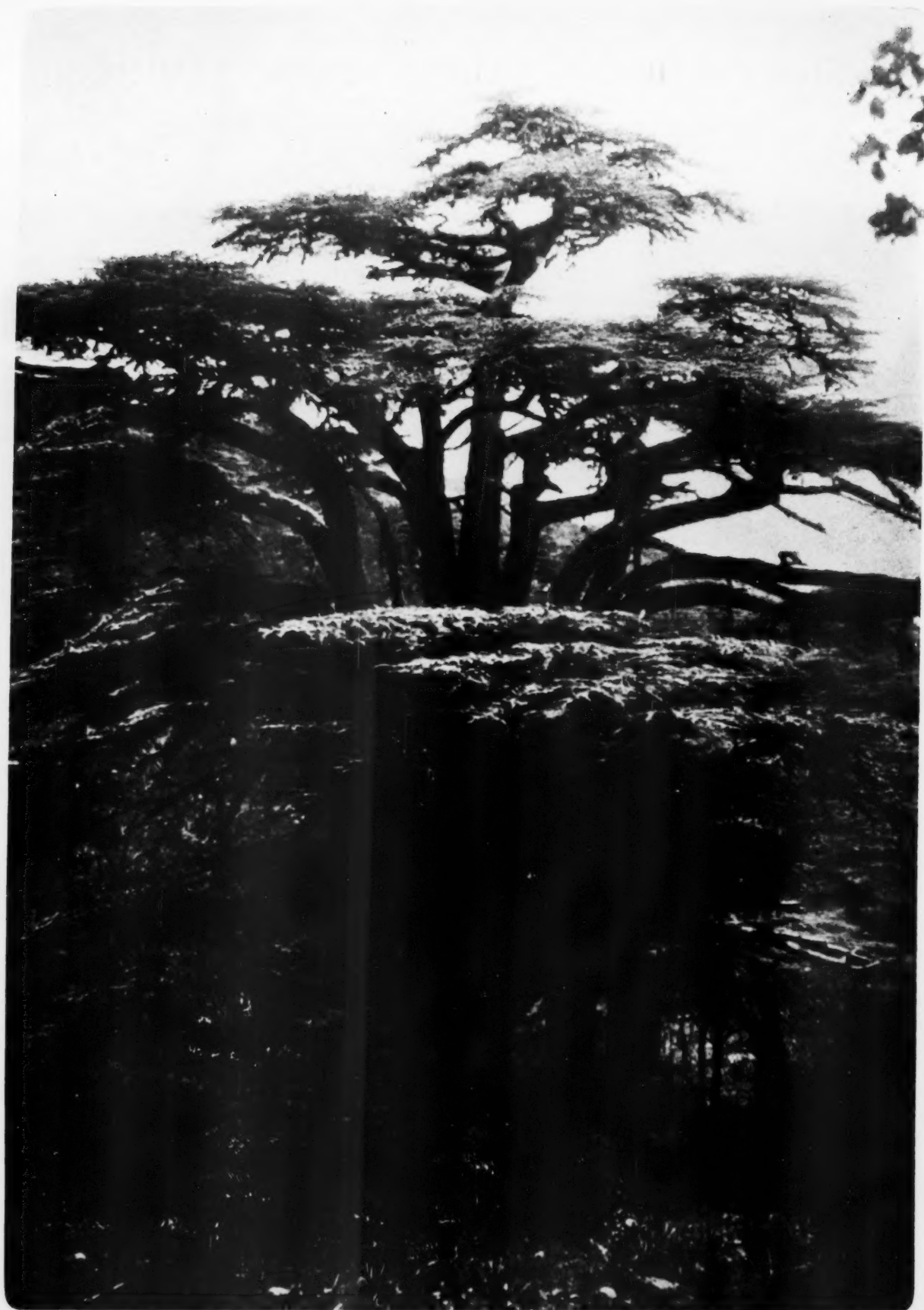
Minister of the Interior of Canada

and remedies is based on sound principles, and his message to forest-minded citizens of the United States is sure to prove highly interesting.

The American Forest Week meeting in Washington is one of a series of similar meetings in American cities at which prominent Canadian citizens are to appear. Already plans to hold meetings in New York City, Boston, Chicago, Detroit, St. Louis, Minneapolis, and Portland, Oregon, have been arranged under the joint auspices of the Canadian Forest Service and the American Forest Week Committee. Similar meetings in Canada are scheduled for Ottawa, Montreal, Toronto, Winnipeg, and Vancouver, with speakers selected from citizens of the United States prominent in forestry affairs. This exchange of speakers during American Forest Week and Canadian Forest Week, both of which are being observed April 22-28, is calculated to give additional impetus to the study of forest problems on both sides of the boundary line, and is one of the important aspects of the 1928 campaign for forest conservation.



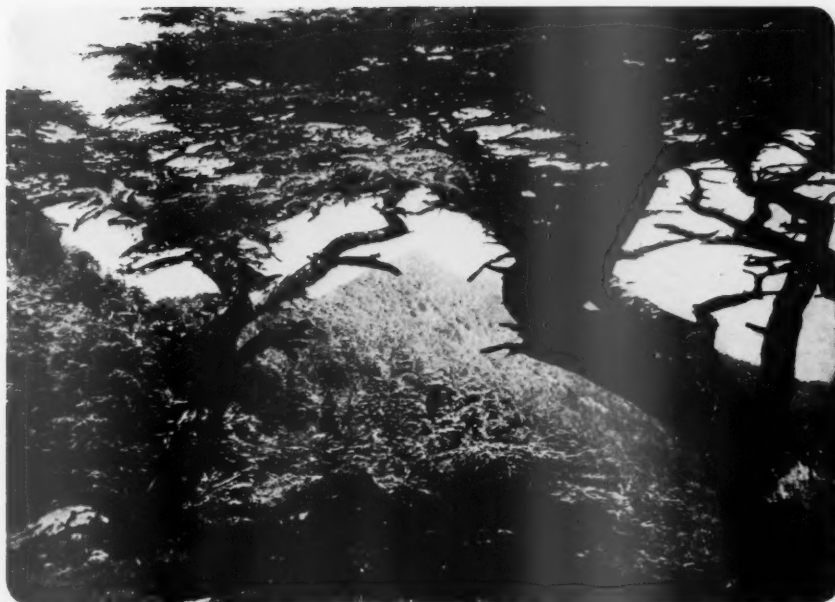
LOUISE HOMER STIRES



Wide World Photos

"The voice of the Lord breaketh the cedars of Lebanon," said Isaiah. And no more perfect or poetic description of these magnificent trees, with their thick leaf canopy and characteristic lateral growth of the topmost boughs, can be found than that of the prophet Ezekiel—"A tree with shadowing shroud, of high stature and among thick boughs."

And again, "His boughs were multiplied, and his branches became long."



"O, art thou sighing for Lebanon, . . . sighing for Lebanon, dark cedar?" Here on the heights of the Cedar National Park France is protecting and preserving these magnificent, historic trees for posterity

The Paradise of the Cedars

By P. L. BUTTRICK

THERE are dozens of kinds of trees commonly called cedars but, to the botanist, only four of them are justly entitled to the name. To these four species has been given the Latin name *Cedrus*. The first and most famous of these true cedars is *Cedrus Libani*, the cedar of Lebanon. From it came the wood used by King Solomon for his temple. This tree, formerly common on the slope of Mt. Lebanon, in Syria, is said to be almost extinct.

The second of the true cedars is *Cedrus Deodora*, the Deodar of the Himalaya Mountains. Under its shade the action of many of Kipling's Indian stories takes place. The third is a rare tree in the Island of Cyprus in the Mediterranean Sea. The fourth is *Cedrus Atlantica*, growing in the Atlas Mountains of North Africa, and commonly known as the Atlas Cedar. All four closely resemble each other and are handsome trees, sometimes seen in cultivation in America, more often in Europe.

So beautiful is the Atlas Cedar that the French Government of Algeria has set apart an area where it is finely developed, as a National Park. General de Bonneval, President of the Geographic Society of Algiers, has contributed to *L'Illustration*, a French magazine, in its issue of July 17, 1927, a very interesting account of this park and its cedars. General de Bonneval's description and photographs of the Cedar National Park or, as it is more commonly called, the Paradise of Cedars, makes one want to start immediately for North Africa.

The park is one of eight in Algeria, all of which were established in 1921, their purpose being, according to a proclamation by the Governor General of the Colony, "To assure the protection of the natural beauties of Algeria, to develop tourist traffic and to encourage the formation of summer colonies." Animal and vegetable life within the parks is to be protected from all human influence save that which is needed to insure its conservation. Therefore, all exploitation of whatsoever sort, including hunting and grazing of domestic live stock, is forbidden.

These parks have been so recently established that they are as yet not well known either to scientists or to travelers. The Park of the Cedars, however, is easily accessible, being about one hundred and twenty miles inland from the city of Algiers, which lies on the Mediterranean Sea, and is connected by steamships with France. An automobile road runs from the city to the center of the park. It is possible to make the trip by train and auto stage to the Arab village of Tenniet el Had, where motors, carriages, or saddle animals may be hired for the remaining ten miles to the park headquarters.

The park, comprising an area of 8,700 acres, lies on the upper slopes of the Ouarensis Mountains and its highest point is nearly 7,000 feet above sea level. It is, moreover, situated in a heavily forested region, much of which is publicly owned. The French Forest Service has charge of the park and a ranger has headquarters there.

Entering the park from the village of Tenniet el Had, one passes through a mixed forest of green, zeen and cork oaks with only a few cedars here and there. As one ascends, the oaks become fewer and the cedars become the dominant species, and at highest elevations the forest is largely one of pure cedar.

This cedar forest is all ages, and specimens are to be seen on every hand from seedlings to veterans. The younger trees are erect and symmetrical, but the veterans, charged with the weight of the centuries, are fantastically twisted and gnarled. Their spire-like form is lost and they have become flat-topped or mushroom-shaped; the lower branches

droop so that their tips sweep the ground. Many of these ancient giants are over eight feet in diameter.

The severe winters and the abundant snowfall of these high altitudes bear heavily upon these ancient centurions of the forest. The damp snow lies like a platform on their branches, sometimes to a depth of forty inches. This great weight at length fatigues even the greatest of the colossi and eventually the limbs are sheared off or the whole tree uprooted.

Here and there one finds whole groups of fallen and uprooted giants which, after making a good fight for centuries, have at length given up the ghost. The resinous character of their wood protects it from decay, and it weathers to an ivory-like whiteness. The interlocked roots and branches in these veritable tree cemeteries might well be mistaken for the bones of antediluvian monsters.



All ages, from the seedling to the veteran, are found among the cedars of the Park. Such great old specimens as these, charged with the weight of the centuries, are fantastically gnarled and twisted out of all relation to their original form

The park road from Tenniet el Had leads to a small mountain meadow, known as the round point, from which excellent trails radiate. In this meadow is situated the ranger station and the Chalet Jourdan, former summer residence of a French financier, now property of the Forest Service. From the terrace of the Chalet many of the finest trees of the park may be seen, as well as some splendid distant views of the mountains.

The trails from the round point are all easy and well kept. One particularly worth while trip is the ascent of the peak called Kif Siga, which can be made in three-quarters of an hour. From this summit

one may see northward to the Mediterranean Sea and southward far out toward the desert. High-line trails run to other peaks and are so laid out as to make possible circular tours about the park. One point often visited is a Moslem shrine, much resorted to by the Arabs in dry seasons to pray for rain.

The park, like our own National Parks, is not without interest from the point of view of those concerned with animal life, as it contains representatives of most of the fauna of French North Africa, including hyenas, jackals, wildcats, foxes and civet cats. Lions lingered here until after the French occupation of Algeria.

Altogether the Paradise of the Cedars merits being better known than it now is. And in the future it will doubtless be visited by many naturalists and travelers.

BURIED FORESTS

Volumes have been written about the world's buried cities of romance, as well as those of sober history, but the age-old mystery of the buried forests of England's Fenland has never yet been solved. In the May issue of *AMERICAN FORESTS AND FOREST LIFE*, Max H. Mason in "The Buried Forests of England's Fenland" tells the fascinating story of these giant trees of mystery. Other outstanding features of this number are "Nesting the Band-Tailed Pigeon," by Albert E. Stillman, an interesting study of this shy bird in its woodland home; "From Poverty to Prosperity," by E. W. Tinker, a look in on a forest working circle; and "The Home Builder Conserves," by Aldo Leopold, a story of the elimination of waste in homebuilding.



To adequately cover the flat forest areas of southern Georgia, fire lookout towers give the best results at the least cost. The ninety-foot tower pictured above is part of the fire prevention system of the Suwannee Forest in Georgia

PEOPLE who own land upon which they propose to produce a continuous supply of timber and forest products learn that it is essential that they provide for the coming in and growth of young trees as fast as the mature trees are cut and removed. The rate at which mature timber may be harvested, and consequently the rate at which the original investment may be realized upon in a sustained yield operation, is governed by the rate at which young growth is established on cut-over lands, by the rapidity of the growth of the young timber, and by its safety from destruction during the period of growth.

When all is said and done it will be found that the prospects of financial success in long-time timber management will depend upon the degree of success had in protecting the area under management from fire.

Fire is the fly in the ointment; the bug-bear of the forest manager. Fire destroys the young pine in its infancy, and,

Fireproofing the Georgia Woods

By I. F. ELDREDGE

if unchecked, sounds the doom of the continuous yield idea at the start. Fires impoverish the soil and materially reduce the rate of growth of young timber, thus prolonging the period that must elapse before the trees can be worked profitably. This delay gives compound interest opportunity to do its dirty work. Fires endanger and reduce the value of crops of timber ready for the saw, affecting, if not wiping out, the all-important final value.

Unchecked fires have been the rule in our section for many years, and yet, in spite of it, we do have large areas of young growth. If you examine any large tract of land apparently stocked with young growth, you will find, however, that less than half of the available acreage is occupied by even a partly satisfactory stand of young timber. If we are going into this thing with the expectation of profit, we must start at the beginning with the aim of getting a satisfactory stand of young timber on every acre of land suited for timber growth. We must make every acre yield its cost and a profit to boot by producing on it its full capacity in timber and by forcing this timber to grow as rapidly as it will into its most valuable forms. In south Georgia simple protection from fire is ninety per cent of the effort required. Nature will do the rest.

For purposes of discussion, fire protection may be divided into three heads, prevention, detection, and suppression.

Of the three, fire prevention is the cheapest, most satisfactory, but the most difficult to achieve. The main agencies are education, law, law enforcement, and good will. When the every-day man in the woods knows the value of young timber, appreciates the meaning of this value to his welfare, and understands that fire is harmful, then the battle will be half won. Wise laws regulating the use of fire in the woods, and law enforcement that will receive the full endorsement of the public are necessary. No man need hope to succeed in preventing fires on his holdings unless he has the hearty good will and cooperation of his neighbors.

A certain amount of patrol is desirable. Often fencing and the exclusive use of the range by the owner himself will do much to prevent fire. Success will come from a combination of all these measures rather than from any one of them.

In any systematic campaign against fire, detection plays an important part. If fires can be seen, located accurately, and reported within a few minutes after they start, the fire fighters have a big advantage. The commonest method of detection is that of the patrol of the woods by men on horseback or in cars. In a flat country with no high points from which to overlook the area, a patrolman can rarely see a fire

more than a mile from him. More usually he will not see a fire more than a quarter of a mile away unless it has reached a large size and its smoke is reaching high into the sky. To adequately cover a large, flat woods forest thoroughly enough to find all fires while they are small would require a large number of men, and even then the results would not be satisfactory. In such woods a fire lookout tower, or, better still, two or three towers, gives the best results at the least cost. In Suwannee Forest we use ninety-foot steel towers spaced about ten miles apart, equipped with range finders and connected with each other and with headquarters by telephone lines. Such towers cost about \$800 each, set up.

From these towers a fire can be located with great accuracy and within a few minutes after it starts. I believe the best combination is that of complete tower observation with a small ground patrol. Three men in towers, with five men on the ground, can take care of 250,000 acres, and can do the work that twenty mounted patrolmen alone could not do.

A good system of telephone communication is essential to reasonably good fire control. Fire towers should be con-

nected with each other and headquarters, and through the latter with turpentine and logging camps, saw mill and ranger stations. Once the good will and interest of local people are obtained, many volunteer reports are received, and often fires are discovered in this way that might otherwise escape detection.

However, the game has only started when a fire has been seen, located and reported. The job at hand is, of course, to get that fire out as soon and as cheaply as possible. For quick, effective action nothing beats an especially prepared and equipped truck, manned with a small crew of experienced fire-fighters. They get better results at smaller cost and with less disturbance of utilization operation than any combination I have tried.

The truck should be fixed up with tool boxes and racks and a flat platform with stake body. They should carry three or four fifty-gallon drums of water, several knapsack hand water pumps, cross-cut saws, hose, shovels,

axes and one or more fire torches. Four or five men, including foreman and driver, make up a crew.

Such crews are kept busy around headquarters or on near-by highways within easy reach, at any work that comes



This seventy-two-year-old stand of longleaf pine in Georgia is a splendid example of proper protection against fire. Note the rich, heavy forest cover clear of brush and other fire hazards and the healthy condition of the trees

to hand until they are dispatched to a fire. On arrival at a fire they generally go at once to the head of the fire and check it from in front, to stop its spread in the direction of the wind. Two men with the hand pumps cut down the flames with water while the rest follow on their heels and put the fire out with the old reliable pine-top. When the fire has been surrounded the crew goes back around the line and cuts the standing burning trees and snags, removes logs, trenches, swamps and otherwise secures the line.

In dry and windy weather a small crew cannot always hold a fire in check. When this is the case, the foreman sends his truck to the nearest turpentine or logging camp for more men and equips them with extra tools and pumps carried for that purpose. Tower men watch the smoke, and if it does not decrease within a reasonable time after a crew gets to work on it, headquarters is notified and help is immediately sent to the fire.

If back-firing must be resorted to in order to check a fire, the crew or a part of it falls back to a road or a prepared fire-line and puts the torches into action. These torches burn kerosene under air compression and shoot a blue flame that will set fire to grass and undergrowth almost as fast as a man can run.

Fire fighting follows many of the principles of the military science. A wise general, knowing when and where a campaign is to be fought and having sufficient time to do so, prepares the ground before him, building forts, breastworks, trenches, wire entanglements and anything else that will help him stop the enemy. So with the fire-fighter. If he is wise, he will make fire lines in advance of the fire season, clear up along tram roads and around sawmills and generally get set to meet his enemy.

Fire-lines may be made to serve in three ways, first as a base from which to backfire, second, as a means of stopping automatically the spread of fires and, third, as a means of keeping fires from starting along railways and roads.

The fire-line, in my estimation, that best serves these three purposes, is a burned strip from fifty to one hundred feet wide between two plowed furrows. All snags and standing dead trees are felled on the strip and within twenty-five feet of each side of it. A fire-line consisting of a strip six feet wide, all of which is plowed, is also advocated.

No set rule can be laid down to govern the mileage of fire-lines required. This will depend upon the value of the timber being protected, upon the degree of fire hazards and upon the pocketbook of the timber owner. An intensive system, justified perhaps only in case of young stands of very valuable timber subjected to a high fire hazard, will cut a given area up into forty-acre blocks. In large timber holdings, the cost of such a system would be prohibitive. A primary network of fire-lines, cutting a large tract up into blocks from 300 to 1,000 acres each, would be about as far as I would want to go in the average run of young and old timber interspersed with swamps and bays, such as we find it in south Georgia.

To attain reasonable success in protecting large areas the whole countryside should be organized to this end. When everybody from the turpentine hands up to the big boss and including settlers, loggers, railroad crews, school children and the merchants in town are on the lookout for fire and all set to fight it,

then it may be said that the region is organized to give protection. Such an effort is rarely in the power of an individual owner; and here is where the Federal and State governments come to the rescue. Under existing laws owners may organize themselves into fire protective organizations and as such will have refunded to them from State and Federal appropriations from thirty to fifty per cent of the amount expended.

In addition to this direct financial aid, the State assists the associations through campaigns for the education of the public and by giving advice as to the best methods to be used. The State Forester of Georgia has been particularly successful in this broad phase of forest-fire organization. The moral support given the movement by the participation of the State and the Government is also of great help.

There has been in the last few years a marked change in public opinion towards burning the woods, and it is safe to say that the greatest obstacle to profitable industrial forestry is in fair way of being removed. Nature is kind to us here in Georgia, and, with a little perseverance on our part, our not-long-since abandoned wild lands will be certain to reward us most richly for our labor and trouble.



Fire suppression in Georgia is aided greatly by the use of hand pumps. They are light, easily handled, and very effective against the type of fires that have greatly endangered great areas of the South's woodland

ON AND OFF



—William Thompson

After sheltering humanity for a thousand years this rose tree at Avignon, France, now houses the weary traveler of the highway



—J. S. Jack

The story of a conquest. Pine growing in the crack of a rock and battling high winds in the Leadville National Forest, Colorado

The heart of a tree. Cross section of a tree showing heartwood in the form of a calf's head

—J. S. Whitaker



—Catherine Schreiber

This oak tree near Exira, Iowa, has grown around a plow left by a homesteader who went to the Civil War and never returned

THE TRAIL



—E. A. Sterling

This sycamore tree is one of the curiosities in Providence County, Rhode Island. Its great horizontal trunk is ten feet long



—William Thompson

In the Garden of Gethsemane, Palestine, stands this ancient olive tree, a sacred remnant of the historical and cherished Holy Land



Wendell C. Walker

In the National Cemetery at Chattanooga, Tennessee, this oak tree is gradually swallowing the tombstone of a Civil War soldier

The Wisconsin black ash pup. This remarkable likeness was revealed by a saw in Wisconsin

—R. S. Kellogg



European Tour Party Takes Shape

Many from Both the United States and Canada Are Attracted by the Rare Opportunity for Foreign Outdoor Travel and Study Offered by The American Forestry Association

PROOF that The American Forestry Association's European Tour is one of the rarest opportunities in outdoor travel abroad is being demonstrated daily by the tremendous concern its announcement has created throughout the nation. Hundreds of letters commending the unique journey have been received, while from most every state and from many regions of Canada have come expressions of enthusiasm from those anxious to make the trip.

Plans are rapidly being formulated by those who have accepted the tour for what it is—a rare opportunity to visit some of the most famous forests of the Old World and to see the most outstanding and historic accomplishments of forestry abroad. Foresters, conservationists, lumbermen, and devotees of outdoor life are diligently preparing themselves for the journey. Parents have been quick to realize the tremendous benefits the tour affords their boy or girl in college, or just out of college; representatives of clubs and organizations are grasping the opportunity to broaden their plans for carrying out their splendid outdoor work in America. Thus, the first adventure in foreign forests offered by The American Forestry Association is rapidly and enthusiastically developing into one of the outstanding events in travel as well as forestry. Indications are that the party will be complete before May 1, as arrangements have been carried out for only a limited membership. Members of the Association and others vitally interested in outdoor life are, therefore, urged to make reservations at once to be assured of being among those who will reap the benefits of the first adventure in European forests under the auspices of the Association and the outstanding foresters and conservationists abroad.

The tour is for everybody—men, women, or children—whether they are members of the Association or not. The party will sail from New York on June 30, on the S. S. *Stockholm*, arriving at Gotenburg, Sweden, July 10. Then, until August 29, when the party sails from Cherbourg, France, on the S. S. *Republic*, there will be one of the most fascinating adventures off the beaten track of European

travel ever made available to the American public. Through the spruce and birch timberlands of Sweden and Finland; into Lapland, the Land of the Midnight Sun; Germany, and the famous Black Forest; Lucerne and the Glacier Garden in Switzerland; and France—Paris and the Forest of Fontainebleau. Arrangements have also been made in France for a tour of some of the most famous battlefields of the World War.

In addition to the main tour, a number of extension trips to places of outstanding interest in England, Southern France, and Italy have been arranged. In this manner London, Edinburgh, Rome, and the French Riviera may be visited.

The American Forestry Association has made a special effort to make the trip as inexpensive as is consistent with providing thoroughly comfortable accommodations and extensive sight-seeing throughout. The price of the tour is \$1,065, with reasonable rates for the optional extensions. There will be a special courier with the party at all times to attend to the mechanics of travel. Members of the party will receive the best accommodations the ships and hotels afford.

The American Forestry Association is anxious to make this tour available for everyone interested in forestry and outdoor life, or those seeking an unusual and entertaining vacation abroad, but to carry this out it is necessary for those contemplating the trip to make definite reservations at once. Arrangements have been made only for a limited number, but those handling the business arrangements of the tour can make additional accommodations providing reservations are made immediately. It is an easy matter to cancel reservations later, but it may be very difficult to secure them.

A descriptive booklet has been prepared setting forth in more detail the many excellent features of the tour and the

optional extensions. A limited supply is left and it may still be obtained by writing The American Forestry Association, Lenox Building, 1523 L Street, Washington, D. C.



In a Foreign Forest



EDITORIAL

Chief Forester Greeley's Retirement

SECRETARY JARDINE'S announcement on February 20 that Col. William B. Greeley will give up his position as chief of the United States Forest Service May 1, to accept an offer made him by the West Coast Lumber Manufacturers Association, and that he will be succeeded by Maj. R. Y. Stuart, now an assistant forester in the Forest Service in charge of public relations, was the "forestry news" of the month.

Colonel Greeley has been with the Forest Service ever since his graduation from the Yale Forest School in 1904. He has served as Chief Forester for eight years, while his predecessors, Henry S. Graves and Gifford Pinchot, served respectively ten and twelve. Throughout the thirty-year period covered by the terms of office of these three distinguished leaders in forestry there has been a continuity of progress and a steady upbuilding of the Forest Service on the same fundamental lines that make it today a monument to all three. The achievement of such a continuity combined with such a succession of able leaders, each in turn beyond doubt the one man in all the country for the place, is an inspiration to those who wish to see American democracy establish its competence for the efficient performance of great and difficult new tasks.

Enthusiasm along this line is tempered when the offsetting fact is remembered that in losing Colonel Greeley the country is losing, prematurely, the services of the man best fitted to serve it as Chief Forester and because of the unreasonably heavy personal sacrifices which a further continuance in public office would involve. Colonel Greeley, primarily in justice to himself and his family, retires from Government work at the height of his powers, and at a time when he can ill be spared. By demonstrated ability he has won public confidence and public recognition as a great and fearless leader. His clear, fair-minded judgment, his courageous, indefatigable spirit of public service and his inspiring adherence to the highest principles of American life have given to forestry a pillar of strength and a breadth of righteousness that neither the present nor the future can adequately record. During his eight years as forester, Colonel Greeley's path has been beset by one difficult problem after another—from the insidious attempts of Secretary Fall to dismember the National Forests to the organized effort of stockmen to wrest vested rights from the Forest ranges. In every instance his defense of public interests has been prompt, aggressive

and effective in the highest degree. Through his fearless generalship, right always prevailed, and he now hands to his successor a National Forest system whose preservation and upbuilding under his stewardship will stand as one of the finest records of public service in the annals of American history.

It was perhaps inevitable that the Government should lose sooner or later Colonel Greeley's distinguished services. Nor is it only the Chief Forester who, having prepared himself professionally for a life-work in forestry and having developed the business capacity essential for the right handling of the great public forestry enterprise, must in time choose between continuing in a Government position at a minor part of his full earning power or resigning. It is true that there has been substantial improvement in the Forest Service salary scale since the present Forester took office. Yet compared with what the work is worth as measured by business standards, National Forest administration is very cheaply bought.

For this in the long run the public interest must suffer. Generally speaking, the Forest Service has been fortunate in being able to hold a sufficient proportion of good men to maintain a capably functioning organization; yet the winnowing process is going on all the time, and it is not the chaff that is winnowed out. More serious still is the turning aside from the Service of many of the best men in the forest schools, and of others who, noting the large disproportion between responsibilities imposed and compensation paid in the Government work, are prevented from taking up the study of forestry at all.

Although Colonel Greeley will pass from his present position into one created for him by one of the great divisions of the lumber industry, the change does not mean that his exceptional endowments are henceforth to be employed on tasks that are purely of private concern. There are large problems to be solved in connection with the West Coast lumber industry, which integrate closely with the whole national problem of successful forest land management. It may be assumed without question that the Forester is taking the new position in the belief that it carries with it an opportunity for large public usefulness and that no position would attract him which did not give good ground for such a belief.

State Forests for New Jersey

The New Jersey Assembly is considering a measure which would authorize a small special tax on real and personal property for three years to create a fund for purchasing state forests. This is a direct way to go about an important task that must be done. The alternative methods of financing are bond issues or direct appropriation at the expense of other state activities. A bond issue is used to pay for public benefits on the installment plan with the present generation usually passing most of its debts on to the next. Two theories are usually advanced to justify this method of buying forests. One is that he who is benefited most should pay most of the bill. The other is to raise revenue for a project that should be undertaken immediately but which cannot be financed from ordinary tax revenue.

New Jersey proposes to meet the problem directly, on the theory that the state needs 200,000 acres of wild lands to help make it self-supporting as to lumber, wood, fuel, game, pure water, and outdoor recreation; that land can be bought reasonably now; that potential forest land ought to be

started producing these benefits as soon as possible and that a small tax, well distributed, will perform a duty which this generation owes to those which are to come. To encourage the assemblymen, there is the fine record of revenue from existing state forests. The State Forester's last report shows that these forests have already paid for eighteen per cent of their cost. Aside from the usual reasons for establishing forests, New Jersey offers a special problem in the form of land reclamation. Nearly 700,000 acres were off the tax rolls on the last survey. These lands not assessed for taxation in the state will continue a liability unless brought into profitable use—that of growing timber crops. Members of The American Forestry Association will watch New Jersey's plan with interest. If the Legislature adopts the direct tax of one-fourth mill on real and personal property, such action will, we think, constitute a wise and courageous step to solve an urgent state problem, and it will stimulate the acquisition of needed public forests throughout the country.

A Forward Step in the Lumber Industry

PEOPLE whose interest in forestry grows out of love of forests are apt to forget that economically it is founded on the forest industries. The fact is that in the long run we shall have only as much forestry on private lands as forests will pay for—not in abstract general social benefit—but in dollars and cents. Friends of the forests ought to take a deep interest in the forest industries, for the latter must pay the forestry bills.

American Forests and Forest Life has never fully agreed with the lumber industry's view that the way in which it has generally dealt with the native forests was entirely inevitable. On the contrary, however excusable it was, considering the general American scene in the epoch of exploitation, we believe that more conservative handling of the virgin forests would frequently have been more profitable. But leaving bygones to themselves, we keenly welcome the undeniable drift toward forestry practices in private lumbering and the rising standards of commercial practice in the lumber trade. There is a direct relation between better practice in the trade and better practice in the forests.

Even if it should turn out to be for the present only a noble gesture, the recent decision of the board of directors of the National Lumber Manufacturers' Association in favor of putting the financial guarantee of the whole group of leading lumber corporations observing American lumber standards of manufacture and grading behind the product of each member of the group is something new under the sun of the business world. We do not recall that any other industrial organization has gone so far. In effect that part of the lumber industry that is represented in the Na-

tional Lumber Trade Extension enterprise is trying to bring about such a condition in its business affairs that the public may purchase lumber entirely on faith in certain symbols, marked on the lumber, indicating its grade and identifying its origin. "Get what the grade-marks and trade-marks on the board say you are getting or get your money back" is the plan in a nutshell. There is to be no tedious litigation, no hair-splitting, no pettifoggery. Upon receipt of a complaint the organized industry would give prompt redress and take upon itself the whole burden of dealing with the offending or erring individual member.

If this lofty commercial proposal shall be put into practice by some 200 of the leading lumber manufacturers of the country it will give a new commercial dignity to lumber that is bound to be reflected in greater respect for the raw material—timber. Under such a condition cut-throat competition would be eliminated and forests would not be cut on a mere gamble that they may possibly realize their worth. Trees converted into lumber without profit are trees that do not leave sylvan posterity. Profitable trees now tend to beget permanent forests.

Such a wonderful and indispensable material as wood is worthy of the honor the National Lumber Manufacturers' Association purposes to confer on it. We recognize that this purpose may be partially and temporarily foiled, in the name of supposed hard-headed business; but, as we see it, it is itself the most hard-headed sort of business and will go far to make and extend a prosperous condition in the lumber business.

The Chinese Elm—A Valuable Tree

By WOODBRIDGE METCALF

THE Chinese elm, *Ulmus pumila*, and sometimes known as the Desert Elm, is one of the most valuable contributions to the imported flora of the United States made by the late Frank Meyer, of the Bureau of Plant Industry, United States Department of Agriculture. He found the tree growing in the vicinity of Peking, China, and was so impressed with its graceful form and general hardiness that he included seeds in his shipments of new plants from the Celestial Kingdom about the year 1914. The seeds were propagated at several of the plant introduction gardens of the Department of Agriculture and soon proved their adaptability to a wide range of conditions in America. One of the original trees growing near Chico, California, is now about forty feet high and its small leaves, the density and weeping character of its foliage combine to make a specimen of great grace and beauty.

That this tree is proving an acquisition of great value is evidenced by the fact that it is becoming widely established throughout the country. Its resistance to drought, alkali, and extremes of temperature render it suitable for cultivation in the great plains region, where desirable shade trees are scarce, and in the semi-arid West and Southwest. In fact, it has been found desirable throughout most of the Continental United States. It is of rapid growth, with slender, almost wiry branches and elliptic leaves much smaller than those of the American elm. It has been found highly desirable as a wind-break, shade and ornamental tree in regions unsuited to most other species commonly cultivated for these purposes.

Near Providence, Utah, a number of these trees have reached a height of twenty and twenty-five feet in six years. In North Dakota they are proving valuable shade trees, growing very rapidly in the face of high winds and severe droughts. In fact, in nearly every section of the country

where they have been introduced they are thriving and lending to the landscape a delicate Oriental flavor.

In March, 1917, the first trees of this species were received at the forest nursery of the University of California, at Berkeley. The trees demonstrated their adaptability to California conditions by growing more than a foot the first year. Two years later, three of these trees, then

about four feet high, were placed in tubs for ornamentation of an enclosed court in one of the campus buildings. Here they were subjected to excessive heat and at intervals were neglected where watering was concerned, until the conditions became almost desert-like in character. In

spite of this the trees survived and grew about six inches during the year.

In December, 1920, the trees were removed from the tubs, severely pruned, and transplanted on the campus, where they have since been growing undisturbed, receiving water about once a month during the dry season.

In October, 1926, one tree was sixteen feet high, while the others were eleven feet and nine feet, respectively. That these trees were not seriously impeded in their growth by the vigorous treatment they received is indicated by comparison with other trees of the same species which were set directly from the nursery into their permanent places in a field. These trees ranged from twelve feet to nineteen feet in height. In August, 1922, a few ounces of seed from the Chinese elm were received from Nanking University, China. When tested prior to sowing in the nursery at the University it was found that there were 68,040 clean seeds in a pound and that eighty per cent indicated viability by cutting test. Seventy-five per cent of the seeds received were found to be pure.

Sixty grams of these seeds were sown during the spring of the following year, and applying the figures derived from the tests, about 5,400 seeds of indicated viability were put in the seed bed. The sowing produced eighty-six good

(Continued on page 240)



The Chinese elm, a foreign plant visitor which has come to America to serve both beauty and utility



Properly controlled by their guardian forests, the raindrops followed their orderly course to the sea, forming the springs and lovely waterfalls that feed the forest and keep it thick and green

THERE was once a family of raindrops. It was a huge family, with so many uncles and aunts and cousins, and even great-great-grandfathers, that you could never count them if you lived a thousand years. But that is the way that raindrop families have always been. Nevertheless, these raindrops were a great deal like people in many respects. The branches of the family that had been well brought up, carefully taken care of, and made to do their

The Raindrop Family

By

MABEL HOWLAND WHARTON

A Story for Children

duty, were very helpful to every person and thing with which they came in contact. But the wilder cousins, which lived without restraint or rule of any kind, went tearing through the world, leaving nothing but distress and sadness wherever they went.

Now, in the very earliest times the mighty forests had been appointed guardians of the raindrop family, and when the forests were able to do their duty and train the raindrops properly, you found peace and plenty, and where they did not, and the naughty raindrops ran wild, you found no forests at all. This was the law. If the forests could not dominate the raindrops, then the raindrops dominated the forests, and eventually destroyed them.

Now, in a certain prosperous country there was a high range of mountains. On one side of the mountains the great ocean could be seen in the far distance, and on the other side was a wondrously fertile valley. On the ocean side were great cities and thriving seaports, and on the farther side there was a far-reaching plain, where farmers planted wheat and corn, and where fruit trees blossomed like a cloud of ocean-foam itself in the springtime. On both sides of these mountains, from the base to the very top, grew strong, sturdy trees, a forest so thick and green that from a distance the waving treetops looked like a covering of close-cropped grass.

For hundreds of years this forest had been growing here. It grew thick and strong, and its trees were very tall, because it had always insisted that the raindrop family, which was under its control, obey it in every particular. But it seemed that the men who lived in the cities by the sea needed quantities of lumber to build their houses and their bridges and their ships. They went up on the mountains nearest them and cut down trees by the thousands. At first there were so many trees that you hardly missed the ones that had been cut. But gradually you could see barren places where they had been taken in great clumps. Careless heaps of refuse and tangled branches were left behind, and often lightning struck these and they were set afire. The fires burned into the good timber, and destroyed the bases of old trees until they fell. The fresh young crop

of tiny trees were burned as clean as if they had never been.

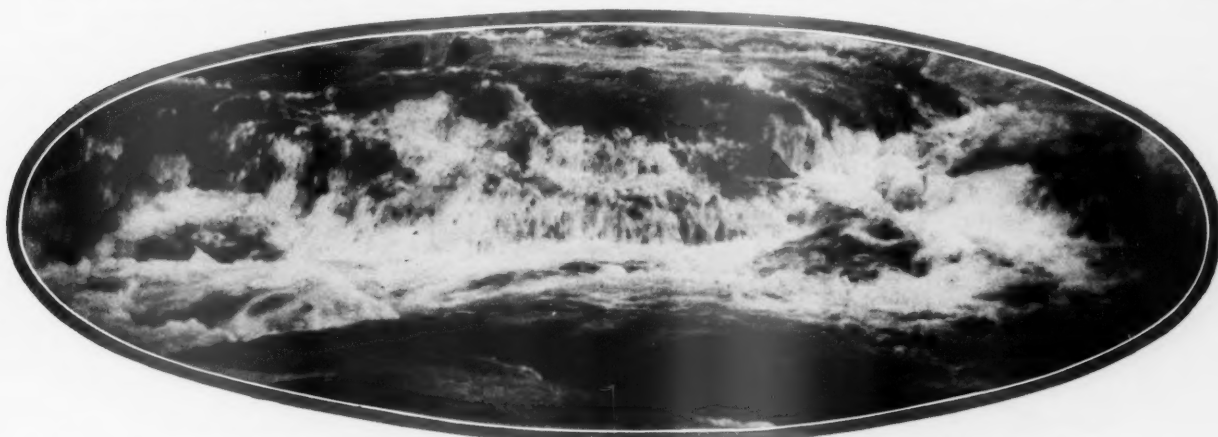
As a consequence, the forest on the side of the mountains nearest the sea grew less and less each year, so small that it could no longer dominate the raindrop family and make it behave. The raindrops fell in great glee now. They chuckled and gurgled as they ran hastening away before the forest could catch them. They wore little grooves and crevices in all of the barren spaces, so that they could run faster. If any fertile leaf-mould or good growing soil got in their way for even a second, they pushed it hurriedly before them and carried it far down and dumped it into the waiting ocean, where it would never be of any use again. Gradually these little worn crevices grew into great gullies and fissures. The earth washed away, and flinty rocks which had been hiding under the soil for ages were brought up into the sunlight. If any forest trees grew too close to these gullies, the wicked drops washed the soil away from their roots and carried the trees along with them. In the fall the forest tried desperately to plant seeds so that new trees could grow in the barren spots and so hold the raindrops in check. But the seeds could not find a place for their roots in the rocky soil, and the birds and the squirrels, which had always been the friends of the forest, were afraid to venture out in the open places and help plant them. So the seeds rotted away and no new trees grew to replace the old.

In the winter, the naughty raindrop cousins banded to-

was surprised to see the evenness of the forest, the calm, singing little streams which wound slowly to the fertile plains. While he stood gazing downward, a sudden storm came up, and a pattering avalanche of the raindrop family descended upon his head. He ran into the forest, and here the raindrops hardly reached him. Just a bit of moisture

sifted through the thick treetops, because the heavy leaf canopy caught them, held them, absorbed them, letting some flow quietly down the branches to the trunk and so to the earth to feed the demure little streams. These sifted raindrops soaked quickly into the thick leaf-mould beneath the trees, and the drops that reached the streams hardly made a ripple on the surface. All of the raindrops went carefully about as if they were performing a well-drilled duty. The man watched all of this in amazement, for he knew that just as many raindrops had fallen as sometimes fell on the city side of the mountain when they tore down in mad destruction. He looked into the beautiful fertile valley be-

low, and new wisdom was given him. He knew now that the valley was good to look upon because the forest had caused the raindrops to obey and do their duty properly each day. With this new wisdom he went home and talked to the people of the city, so that they made a great resolution. They set out immediately to replant all the barren spots on the mountain with strong young trees. They were very careful when they cut trees after that, choosing only those that could be best spared. If anyone was careless and left



But when the naughty raindrop cousins banded together in defiance of the forest and its control, they chuckled with glee as they rushed away where the forest could not catch them. Soon they were wickedly tearing down the gullies like an avenging army, carrying everything before them, and the people, in terror, called them a flood

gether and tore down the gullies like an avenging army. The people in the cities called them a flood when they came all together this way. They carried huge bridges before them, they washed out railroad tracks, they tore down houses, and people perished by hundreds, but the raindrops only laughed at the destruction they were causing. In the city people were in despair and said sadly, "This is no longer a good city; we will have to move away and build anew."

Then one day a very wise man climbed to the very top-most peak of the mountain range. He climbed so high that he could look down into the beautiful blooming valley, and he

heaps of rubbish, or set the forest afire in any way, they put them in jail until they mended their ways.

They had learned at a great cost that they could never live in their beautiful cities unless they first saw that the forest lived too, because the forests had long ago been appointed guardians of the raindrop family, and, uncontrolled, these raindrops grew bold and became raging floods, carrying unhappiness and destruction in their wake. But, cherished by their forest guardians, and wisely directed, they served to bring again bloom and beauty to the valley beside the sea.

Shirley W. Allen Takes Up New Work

SHIRLEY W. ALLEN, who for the past four years has served The American Forestry Association as Forester at Washington, has resigned to become Extension Professor of Forestry in the School of Forestry and Conservation at the University of Michigan. He will leave April 1. The loss of Mr. Allen will be keenly felt not only by the Association but by those who have been associated with him in his work. His untiring efforts in the interest of forestry legislation and education have been a strong factor in the advancement of this phase of forestry. He has been especially active on the McNary-Woodruff Bill, which provides for the acquisition of forest lands in the eastern United States; and on the McSweeney-McNary Bill, which provides for continuous forest research by the Federal Government. While his educational work has been general throughout the East and South, Mr. Allen, in the past two years, has laid the foundation for the Association's educational projects in Florida and Georgia. Mr. Allen's work in Michigan will be directed toward the use of forestry material in the regular courses taught in the public schools. This work, while something of a new development in forestry, has been proposed by Samuel T. Dana, Dean of the Michigan Forestry School, who is convinced that the forestry slant can be given in civics, biology, mathematics and other subjects. Mr. Allen will also devote part of his time to develop-



Shirley W. Allen

ing forestry projects for clubs in Michigan which have evidenced interest in forests and trees. An outstanding example of this development is found in the Kiwanis organization of

Michigan, which is planting five thousand acres on the

Michigan National Forest. Mr. Allen received

his forestry training at Iowa State College, at

Ames. During his early years he worked

for lumber companies in northern Min-

nesota, and spent one season on the

Pike National Forest in Colorado.

In July, 1909, he joined the United

States Forest Service, being as-

signed to the Stanislaus National

Forest in California; and for the

following three years served in

various capacities on the Klamath

and Lassen National Forests, also

in California. In 1914 Mr.

Allen was in extension work for

the New York State College of

Forestry, resigning in 1918 to join

the staff of the Forest Products

Laboratory, at Madison, Wisconsin,

as Industrial Examiner. In 1920 he

became Supervisor of the Angeles Na-

tional Forest in California. Two years

later he left the Forest Service and entered

the retail lumber business in southern Califor-

nia. He was appointed Forester for The

American Forestry Association on April 21,

1924, and has greatly strengthened its activities in all lines

of work during his period in office. Mr. Allen is a member

of the Society of American Foresters and serves on the edi-

torial board of the *Journal of Forestry*. For two years he

has been secretary of the American Forest Week Committee.

The Passing of the Maine Wilderness

(Continued from page 198)

I have spoken of flowage, excessive cutting and subsequent burning, but many other factors have crept in to destroy the wilderness. It so happens that modern methods of transportation by motor car and tractor have made it more economical to build good roads than to depend on the old tote roads or the Canadian bateau for transporting supplies. So in Maine they are experiencing just now a period of private-road development; roads built by the pulp companies as main arteries through their holdings. At one stroke the shrinking wilderness is cleft and the motor car carries its dust worn "auto campers" into the haunts of the deer and moose to jostle out the real lover of the woods. Perhaps it is far-fetched to raise even a feeble squeak of protest at so late a date—but could not one or two canoe routes be left sacred to those who prefer the laughter of the loon

to the soul-racking jar of radio jazz? Or the smell of new balsam shoots to the stench of gasoline? Within a few years it will not be possible to pitch your tent beyond the noise of five-ton trucks.

With the roads have come many changes, mostly, I regret to say, inevitable. The sturdy race of woodsmen is vanishing. Guides have become caretakers of summer camps, owners of garages, or operators of speed boats.

Here then we have one more little chapter, none the less pathetic, in the driving to the wall of a great race of pioneers. And these Maine woodsmen were great in their day, honest, fearless, resourceful to an extraordinary degree, but too individualistic for this time and generation. For such as they the modern bustling world has no place, so we may drop the curtain before the final act of extinction.

Snapshots of European Forests

By An American Forester



IV. Finnish Forestry Pays

By JOHN D. GUTHRIE

FINLAND is the Swedish name for what the Finns call Suomi. The country was ruled by Sweden from 1157 until 1808, so it is but natural that Swedish names should still be common in this little republic of the north. Finland is a new nation—only some nine years old, having been born while the Russian revolution was in full swing in 1918. It is a small country with limited resources. It is without coal and minerals. Timber and water power are its principal as-

sets. The energy, native intelligence, and appreciation of education possessed by its people are really the nation's greatest possessions. The country is very flat and swampy, with thousands of lakes and many large rivers. The highest part of Finland—the extreme north-west “handle” which extends into Sweden—

is some 4,000 feet elevation. The greater portion of the country, however, does not exceed 200 feet above sea-level. The climate is comparable to that of Montana at 4,000 feet elevation, or that of Arizona at 8,000 feet, or to that of northeast Canada. Of its total area, or 1,010,500 acres, seventy-three per cent is in forests; of this area only fifty-nine per cent is in productive forests. Finland is richer in forests, however, than any other country in Europe. Her

population numbers three and one-half millions, and this includes some 2,000 Lapps and from 4,000 to 5,000 Russians.

We were in Finland in May, 1926. There were ten of us, and, since we were the first American foresters to visit Finland, our visit assumed almost an official character. We were met at Helsinki by Dr. A. J. Cajander, twice premier of Finland and now director of the *Metsä Hallitus* (Forest Service), and several other doctors and professors of forestry.

Our pictures were taken immediately upon landing, baggage inspection by customs officials was waived, and we were escorted to the principal hotel, over which a large American flag was waving.

A day or two were spent in being welcomed by the Forest Service officials, the forestry faculty of the Uni-

versity of Helsinki, the Finnish Forest Fire Insurance Association, and other official bodies. We then set out in a luxurious private car placed at our disposal for ten days in Finland, accompanied by Doctors Cajander, Lakari and Saari, all foresters. Only Dr. Saari spoke English, and that excellently. Our first breakfast in Finland was a surprise. To us, this breakfast consisted entirely of *hors d'oeuvres*. There were cold corn beef, cold pork, cold ham,



Finland, though a small country of limited resources, is rich in water power and forests. The forests alone pay the larger share of the cost of the Finnish Government

three kinds of pickle, salad, cold tongue, two kinds of cheese, beer, sweet milk and clabber, six kinds of fish (several raw), such as herring, mackerel, eel, anchovies, salmon, caviar, and two kinds of sardines, boiled eggs, omelet, boiled potatoes, and really wonderful coffee. Everything was cold except the eggs, potatoes and coffee. We kept eating on the *hors d'oeuvres* waiting for the *main* breakfast to arrive; it never came. Well, we tried them all. It looked something like a wedding breakfast to us, but with the bride's cake omitted. When noon came and we stopped at a small sawmill town, we were served with practically the same menu, only a hot meat and more boiled potatoes were added. About four in the afternoon we were served more good coffee, a part of the same menu, and at nine that night we had the breakfast all over again, although in another town. This continued three or four times each day for ten days, as we wended our way north toward the Arctic Circle. We literally ate our way north! A forester or two succumbed by the wayside with acute indigestion, but we hardier forest folk fell to the fish at least three and usually four times each day. The sick ones convalesced on big bowls of sour milk with much sugar.

We were shown through pulp mill after pulp mill, sawmill after sawmill, all frame (or gang) saws, all very interesting and well managed. The frame saw, used throughout northern Europe especially, is a group of five or six band saws set in a frame which cuts an entire log at one time, without turning the log on the carriage as we do. The entire log is run in and comes out boards, all in exactly the same relative position they were in the log. At each plant there were English-speaking officials who were extremely cordial and who impressed us as wide-awake business men. Many of them had lived in the United States.

Labor is cheap in Finland, and about forty per cent of the laborers in sawmills and pulp plants (sulphate, sulphide and



A forest sample plot placarded to tell the object of the experiment, with other information interesting to the public visitor

keeping down the cost of production while keeping up the output. Their Forest Service is far more than self-supporting; in fact it bears the larger share of the entire cost of the Finnish Government.



Women doing the heavy work in the yard of a pulp plant. It is an interesting fact that women constitute forty per cent of the laborers in Finnish sawmills and pulp plants

ground) are women. Lumber was going in large quantities to England and Germany; pulp to Germany, France, and America. We saw many boats loaded entirely with cord wood bound for England, the English coal strike being on at that time.

Finland is a new nation, as has been said, and, like so many European countries since the War, is experimenting in social democracy, or democratic socialism, whichever one chooses to call it. For instance, the State (i. e., the Government) insists on owning at least fifty-one per cent of the stock in all sawmills and pulp and paper plants. Not only that, but the Government has several sawmills of its own, operated entirely by its Forest Service, which also does its own logging and, in most cases, the river driving. And, according to information given us, it is making the plan pay. The forestry officials and laborers at the Government mills are given a fixed salary or wage, and in addition a bonus if they succeed in

keeping down the cost of production while keeping up the output. Their Forest Service is far more than self-supporting; in fact it bears the larger share of the entire cost of the Finnish Government.

Logging is all done on the snow and ice in the winter, logs are driven in the spring, and the mills make their big cuts during the long summer days of from eighteen to twenty-four hours of daylight. On this account we saw no actual woods operations. We spent a very pleasant and instructive day in the State Forest of Pungarhaju, which is managed entirely by the research institute or forest experiment

station. The forest is also a sort of public park, having several large summer hotels on lands leased from the Government, a beautiful road system, fine wide trails, rustic seats on view points over lakes, and other tourist attractions. Here were ranger (*jäger*) houses, a large forest nursery, many sample plots, and experiments. And here was an in-

teresting point—on every sample plot was posted a large card or sign stating in simple language the object of the experiment or study, the date begun, volume of wood removed, volume left (if thinning study, for example), and other information to appeal to the casual tourist or public visitor.

Finland, in common with most European countries, is much poorer in variety of tree species than the United States; in fact, the number of species decreases as one goes north. For Finland's forests the proportions are about as follows: Pine, 55.2

per cent; spruce, 24.8 per cent; birch, 16.9 per cent; alder, 1.5 per cent; aspen, 0.2 per cent; clear or open, 1.4 per cent. Coniferous forests therefore constitute eighty per cent and broadleaf trees 18.6 per cent of her stands. The pine is the Scots pine (*P. sylvestris*), common throughout most of Europe, which here grows remarkably straight and sound, much better than any I have seen in France. Finland's forests are said to be two-thirds middle-aged. Her

foresters claim that they are not cutting annually an amount equal to the annual growth. They give as the mean annual increment or growth a total of 12,243,200,000 board feet,

with an estimated annual consumption of 11,120,000,000 board feet. Since 1918 Suomi has been "on her own," and naturally is making every effort to increase her exports, which must be from the forest. Her foresters gave every evidence of possessing sound judgment, of fully realizing their responsibilities for the production of national revenues, and at the same time safeguarding their great and



Pine, spruce and birch logs along a forest road in Finland. Finland is making every effort to increase her forest exports

only natural resource. According to Dr. Cajander, the total expenditures of the Finnish Forest Service for the year 1925 were 120 billion Finnish marks. Receipts for the same period were 230 billion Finnish marks, leaving a clear profit of 110 billion Finnish marks, or about two and a half million dollars! Finnish forestry evidently pays. [The concluding article of this series will appear in the May Issue—EDITOR.]

An Anchor to Forestward

(Continued from page 201)

Rosa late in December, 1828. By February, 1829, it was in full swing. Twenty negro slaves were hired from their owners and established on the peninsula under the direction of Samuel Davis, caretaker of the Judge's orange grove, whom the Judge had appointed overseer.

All of the objects enjoined in the Judge's letter of appointment were pursued. Acorns were gathered and planted in special enclosures; young live oaks were dug up and transplanted in what were believed to be more favorable localities. Finally a great deal of labor was bestowed upon clearing away from around good, healthy young live oaks, already flourishing on the ground, all trees and shrubs calculated to impede their best progress. By mid-April, 1829, more than 20,000 trees, ranging from full-grown to saplings two inches and under in diameter, had been so furnished with breathing space. Considerable pruning of the cleared trees was also done, the object in view being to attempt to direct their development into forms and sizes more suitable for incorporation into the ponderous frame-work of a man-of-war. By September, 1829, upwards of 40,000 trees had been cleared and pruned in this manner. In addition six miles of avenues had been opened up, two parallel north-south ones, run-

ning from the bay to the sound, and one running east-west through the center of the peninsula, bisecting the others at right angles. The object of these avenues was particularly protection against fires. But it was also the theory of Brackenridge that they improved the growth of the live oak by allowing a free circulation of air among the trees. By the close of 1830 several more miles of these avenues had been slashed out. The huge piles of slashings which accumulated from these operations were at first allowed to stand, the theory being that they would rot and disintegrate. It being speedily ascertained, however, that they constituted a serious fire menace, the practice of burning them was instituted by Brackenridge and Davis.

By December, 1830 the great experiment at Santa Rosa had gotten fairly started. It had an organization; it had the beginning of a crude fire protection system; prunings, grubblings, plantings and transplantings had given it the beginning of an experimental live oak forest. Whether or not that forest would be a long-run success only the test of time could answer.

[In his third and concluding article, "Who Killed Santa Rosa?" Mr. Cameron tells of the surprising events that led to cessation of this experiment.—EDITOR.]



DISCOURAGED

Says the Sod Surgeon of the *Fertilizer Review*: "Well, ground-hog day has come and went. And there was little consolation to be had. Having seen his silhouette regularly for the past four years, there is but one conclusion to be drawn: *the ground hog has turned professional*. He has observed that the 'pro' forecasters wax fat on premonitions of 'bad weather ahead' and 'meteorological calamities horoscoped.' He's tired of furnishing dependable weather prognostications for nothing—he's only a ground hog, but he wants his share of the bacon. Can you blame him?"

LUCRETIVS WRITES ON FOREST FIRES

Lucretius, or Titus Lucretius Carus, as he would have signed the payroll, or Luke, as his friends probably called him—anyway, this Lucretius should have been fire-chief of the Forest Service of the Roman Republic. Only there wasn't a Forest Service, so unfortunately he had to waste his talents on mere poetry and philosophy. So says Robert Marshall in the *Northern Rocky Mountain District Bulletin* of the Forest Service. Despite all the information on the cause of forest fires gathered through the sweat of countless rangers during the Twentieth Century A. D., there is little to change in Lucretius' rating of the principal causes of forest fires in the First Century B. C.

"The conflagrations burned the forest trees among the mighty mountains," he wrote in his *De Rerum Natura*, "caused by a bolt of lightning from the sky, or else because men warring in the woodlands had hurled fire on their foes, or yet because . . . men desired to clear rich fields and turn the countryside to pasturelands, or slay the wild beasts and thrive upon the spoils."

Which is almost precisely the same as the major sources of forest fires on the National Forests during the ten-year period from 1916 through 1925. These were:

(1) Lightning; (2) hunters, campers, and smokers (listed by Lucretius as hunters); (3) incendiaries (which the warring soldiers certainly were); (4) railroads (which Luke can hardly be blamed for skipping); and (5) brush burning (including clearing fields for agriculture).

Lucretius must have been on the fire line at frequent blow-ups, for he was familiar with that roar made by crowning trees which, even when heard several miles away, requires the raising of the voice for ordinary conversation. "Nor is there aught," he remarks, "that the crackling flame consumes with sound more terrible to man than Delphic laurel."

But I do not want to write a Parson Weemes biography of my hero, so it is only fair to mention one place where this famous old Roman failed to show the proper scientific exactness. At any rate

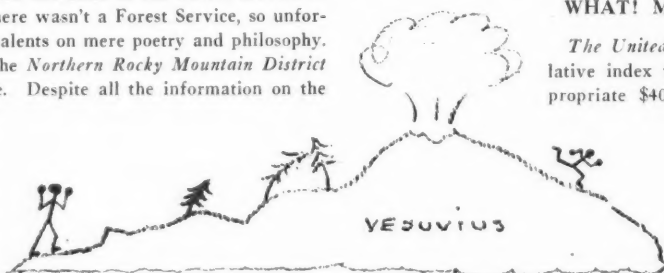
modern foresters would be inclined to sniff quite violently at one cause of conflagrations which Lucretius describes, namely, crown friction. Yes, that's right, the heat generated by the rubbing of one tree top against another in a heavy windstorm. "But often it happens on high hills," he asseverated, "that neighboring tops of lofty trees are rubbed one against the other, smote by the blustering south winds, till all ablaze with bursting flower of flame."

No doubt the fire fighters of his day had the same tendency to relax when the "push" wasn't around as have the present-day inebriates from Spokane. Therefore, it seems probable that Lucretius wrote the following as a bit of propaganda to scare the Roman trench builders out of their daily siestas:

"To certain trees there has been given so dolorous a shade that often they gender achings of the head, if one but be beneath, outstretched on the sward."

WHAT! MAKE 'EM MOSS-GROWN?

The *United States Daily* says in its legislative index that "Senate passes bill to appropriate \$40,000,000 to be expended in a period of eight years to aid States in reforestation of denuded laws."



WHAT LUCRETIVS PROBABLY SAW

'NUTHER BLOW TO AVIATION

Just read in the day's news of an eagle which was slain in combat with a

porcupine. Listen to the admirals. Some of them will surely use this as an argument against aircraft.

SO WE MAY CLEARLY UNDERSTAND

S. E. Doering, of the Superior National Forest in Minnesota, kindly furnishes a glossary containing what he says are the most common words in use thereabouts. Included are the following:

Pack-sack—A commodious affair resembling a pannier and used for the same purpose, but on a different kind of jackass.

Alkie—Boiled moonshine. A Finnish product. Will finish anything.

Coffee Royal—A Finnish blend of coffee and alki. Greatly heightens exuberance and increases the momentum of verbosity.

No-see-um—A small (very) energetic fly. Astoundingly prolific and exceedingly loyal to his job.

Mosquito—A man-loving animal outdoing the No-see-um at every turn and in every particular. A few (only) miniature, mal-nurtured specimens have escaped from Minnesota.

TEN-WORD FISH STORY

Fish, wish. Bait, wait. Bite, flight. Roam home. Buy, lie.

—*New York Sun*.

Boy Foresters Serve Denver

BY DAVID W. THOMAS

EIGHTY years before the Pilgrim Fathers landed on Plymouth Rock, the Spanish explorer, Francisco Vazquez de Coronado, and his armoured conquistadores trod the slopes of the Rocky Mountains and vainly searched the reaches of the vast plains known as the western Mississippi Valley, in search of the "Seven Cities of Cibolla," the cities of gold and turquoise.

That was the beginning, the first struggle of civilized man to conquer the West. The West was not unfriendly, it was just wild and waiting to be tamed. Then followed the trapper, the argonaut, the explorer, the homeseeker, the engineer, the home builder and the city builder.

Men and material did it. Men of abounding courage and iron nerve, and material that Nature has lavished in apparently inexhaustible supply. But men know that this supply of material will not last forever; the specter of forest depletion grins on the horizon. In some instances the wonderful growth of the cities has taxed the ability of the apparently limitless "oberland" to furnish an adequate and suitable water supply.

The city of Denver, Colorado, draws upon a thousand league watershed and worries not for the present; but Denver is looking into the future. The thinkers of the city are measuring people and industry fifty years hence in terms of water. In April, 1926, the Forestry Committee of the Denver Chamber of Commerce took to the field with youthful allies, the boys of the Order of De Molay, in frontal attack on Lookout Mountain, famed throughout the Nation as the last resting place of William F. Cody, the immortal Buffalo Bill, and the beginning of Denver's system of Municipal Mountain Parks. Twenty-five hundred Western yellow

pine seedlings were planted. Last fall the area was carefully checked by officers of the Forest Service and the seedlings found to have attained a survival of sixty per cent.

Fortified with the experience of last season's planting, the committee took in more territory this spring and completed a planting project that is noteworthy. Four thousand trees

were planted on the north slopes of Lookout Mountain, overlooking Clear Creek Canyon, scene of the first gold discovery in Colorado, at a point "straddling" the picturesque "Double Hairpin Curve" on the Victory Highway, as it begins its toilsome climb over the Continental Divide. The actual planting was done again by two hundred Denver youths, the Order of De Molay.

A mile and a half or so below the "hairpin planting," the boys of the senior class of the Manual Training High School of Denver set out six hundred yellow pine in a picturesque gulch on the east slope of the mountains, with the town of Golden and the Colorado School of Mines campus at their feet, and the limitless plains stretching beyond.

Simultaneously, across the valley to the northeast on the south

slope of Table Mountain, the Boy Scout Troop of Golden and the Forestry Club of the Byers Junior High School, of Denver, planted a sizeable forest amid the rocks and scrubs of that area, and several miles to the southeast the boys of the Colorado Industrial School were planting thirty acres or so of windbreaks and groves on the extensive acreage of that institution.

Upward of seven hundred boys participated in the project, in its several unit plantings. Approximately fifty acres of mountain foothill terrain were planted to pine trees.



Denver Tourist Bureau

A bird's-eye view of the planting area, showing the foothills, sparsely timbered, with the Continental Divide in the background. The winding road is known as the Lariat Trail, on the Victory Highway, as it begins to climb over the Rocky Mountains

AROUND THE STATES



THE AMERICAN FORESTRY ASSOCIATION

Rockefeller Foundation Gives \$5,000,000 to Great Smoky Park

The Great Smoky Mountain National Park, in North Carolina and Tennessee, has been assured by the announcement that the Laura Spelman Rockefeller Memorial will contribute a sum equal to the total of all contributions from other sources up to \$5,000,000. The total of contributions from other sources is \$4,913,000. The Rockefeller Memorial doubles this amount, making the total available for land purchase \$9,826,000. According to Colonel David C. Chapman, Chairman of the Board of the Great Smoky Mountain Conservation Association, this amount assures the purchase of lands within the proposed boundaries of the park.

Colonel Chapman made known the contribution at a recent meeting of the Tennessee Park Commission. Simultaneously, the announcement was made at a meeting of the North Carolina Park Commission by Governor A. W. McLean, at Raleigh.

Immediately following the announcement in Tennessee, the Park Commission passed a resolution requesting Governor Horton to issue the state's bonds for \$1,500,000, in accordance with the act of 1927 passed by the state legislature. Under this act, the State of Tennessee agreed to contribute \$1,500,000 toward the acquisition of lands for the park, provided that the Secretary of Interior agreed to accept a specified area and that adequate financial provision be made by both Tennessee and North Carolina.

New York Association Launches Magazine

The coordination plan and establishment of a clearing house for conservation organizations announced by the New York Forestry Association at the close of its annual meeting in February has taken definite form in the launching of a monthly magazine to

tive from New York and President of the New York Forestry Association. The magazine was launched with a circulation of 10,000.

Mt. Hood Committee Appointed

To study the place of wilderness areas in our national life Secretary of Agriculture Jardine has appointed a committee to investigate and report upon the Mount Hood area in Oregon. This action resulted from a hearing brought before the Secretary after Colonel W. B. Greeley, Chief of the United States Forest Service, twice refused to issue a permit for the construction of a commercial tramway for tourist traffic to the summit of the famous mountain. In taking this action, Colonel Greeley pointed out that many people throughout the country have expressed a sentimental regard for the sacredness of America's historical mountain peaks, and that a tramway would impair their outstanding features.

While the study of the committee will be concerned to some extent with the pending application for authority to construct this tramway, it will be considerably broader in its scope, and it is expected that the committee's conclusions will be useful in shaping the

future policy regarding the use or preservation of other wilderness areas within the National Forests. Opinion has been sharply divided on this question, especially as it concerns Mount Hood, there being important interests which favor commercial development of recreational facilities in these areas, while others urge the preservation of such

Forest Fires Make Idle Lands Idle Industries Idle Hands

**Stop Fires, Grow Trees
Keep Forest Land Working**

The poster of the Western Forestry and Conservation Association, of Portland, Oregon, awarded the "Forestry Cup" at the Annual Meeting of The American Forestry Association, at St. Louis, in the competitive poster exhibit.

be known as the *New York Conservationist*. The new publication combines *Grouse*, a sportsmen's publication; *New York Forestry*, the yearbook of the Association; the *Seed Tree*, a bulletin issued by the Association; and the news bulletins of other cooperating groups. The plan was developed by Hon. John D. Clarke, United States Representa-

areas in their present wilderness state.

In undertaking its study of the Mount Hood area, the committee will take into consideration its recreational and esthetic, educational, and scientific values, as well as its material resources, and will make an analysis of the attitude or sentiment of interested groups.

The members of the committee just appointed by the Secretary were nominated by the Governor of Oregon, the Mayors of Portland and Hood River, chambers of commerce, farm associations, and outdoor and recreation associations. The committee includes the following:

George A. Rebentisch, 1020 East Broadway, Portland, Oregon; R. E. Scott, Hood River, Oregon, President of the Hood River Chamber of Commerce; Arthur M. Churchill, Northwestern Bank Building, Portland, Oregon; Professor George W. Peavy, Dean of the School of Forestry, Corvallis, Oregon; H. R. Richards, President of the Farmers Educational and Cooperative Union of America, Oregon and Southern Idaho Department, Route A, The Dalles, Oregon; F. A. Elliott, State Forester, Salem, Oregon; Julius L. Beier, Director, Oregon State Chamber of Commerce, 321 Oregon Building, Portland, Oregon; Dr. E. L. Packard, University of Oregon, Eugene, Oregon; Rodney L. Glisan, Spalding Building, Portland, Oregon; C. M. Granger, District Forester, Forest Service, Portland, Oregon.

Harriman Park Enlarges Camp

Camp Onika, of the Camp Fire Girls, on Upper Cohasset Lake, in the Harriman State Park, New York, will be greatly enlarged this year to meet the increased demands upon this organization for summer camping for girls and young women from greater New York and northern New Jersey. The establishment will be extended to include three complete standard camping units, with dining and recreation halls, sleeping cabins and other facilities.

North Carolina Wood Survey

A survey of non-utilized wood available as raw material for by-products industries will be undertaken in North Carolina by the National Committee on Wood Utilization of the Department of Commerce. This state survey, the second in a program of national scope, will be made in cooperation with the North Carolina Department of Conservation and Development.

Governor McLean, of North Carolina, is honorary chairman of a subcommittee under which the survey will be made.

A similar survey of Virginia is now nearly completed. This series of state surveys, planned to eventually cover the entire country, is part of the committee's program of closer use of wood to enable profitable commercial reforestation.

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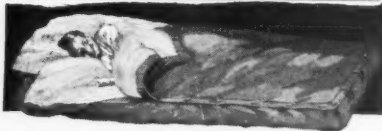
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The Chinese Elm

(Continued from page 229)

trees, or one tree for every sixty-two good seeds sown. This is not an unduly small ratio for many kinds of plants.

About nine months later, sixty-five of these trees, then about eight inches tall, were set in a grassy plantation area which had been burned over. Here they received no later irrigation or cultivation during the excessively dry season of 1924, and in addition they were seriously browsed by cattle. All of the trees appeared dead the following winter, but in the spring a good number put out new shoots. They are still alive, though their recovery is slow. Of twenty species of trees planted on this site the Chinese elm is the only one in which any individual trees survived the dry season.

Many of the trees raised in 1923 grew to an average height of eighteen inches in a transplant row the following year. Two of the largest averaged three and one-half feet and were set in the campus plantation, where they grew to five feet in height at the close of 1925, and to six and one-half feet by October, 1926. They received little irrigation during the dry season.

Three other trees planted in a garden at the same time and given adequate, though not excessive, irrigation, are now ten, twelve and fourteen feet high, respectively. They require rather careful pruning in order to develop an upright stem and well formed crown, as they have a tendency to branch near the ground. The result of such attention is well worth the effort, however, as the final result is a beautiful tree. In general, it may be said that the Chinese elm will make a steady growth of from two to three feet a year for the first five years in the San Francisco Bay region.

The most rapid growth of Chinese elm in California is in the case of three trees which were planted in front of a newspaper office at Lancaster, Los Angeles County, in the spring of 1925. They were three feet high at the time. In the heat of Antelope Valley and with plenty of water, they have grown amazingly. One tree, in four years, has grown to twenty feet in height, while the others measure nineteen feet. One of these trees bore a heavy crop of seed in 1926, so it may be that before many years we can produce our own Chinese elm seed.

The Chinese elm is worthy of extensive trial for street and highway planting, wind-breaks and ornamental purposes throughout the country. It has demonstrated its ability to make satisfactory growth with a minimum of attention and care.

Dr. A. P. Kelley Joins Allegheny Forest Experiment Station

Dr. Arthur P. Kelley, assistant professor of botany at Rutgers University, has joined the staff of the Allegheny Forest Experiment Station, at Philadelphia, according to the United States Forest Service. The Alle-

gheny Station was recently established to cover forest research in New Jersey, Pennsylvania, Delaware and Maryland.

Dr. Kelley has been conducting courses in general biology, general and agricultural botany, taxonomy of vascular plants, histology and ecology. He also started the greenhouse plant collection and the herbarium at Rutgers.

Chestnut Blight Spreads in Southern States

The chestnut blight is continuing its rapid spread in the Southern States, the United States Department of Agriculture warns, advising owners of chestnut timber to consider carefully their salvage operations, particularly in regard to the smaller trees suitable for poles and for manufacture of tannic acid. The Bureau of Plant Industry and its cooperating reporters made observations in 1927 to determine the extension of the blight, and find no reason to anticipate any abatement of the spread and increase of this fungus pest. It is expected that within the next ten years the blight will kill most of the chestnut timber in the Southern Appalachian region.

All of the important chestnut-producing counties of Virginia except fourteen in the southwest corner of the state have eighty per cent or more of the chestnut trees infected or killed by the blight. Twenty-one counties of West Virginia, seven of North Carolina, two of South Carolina, and two of Georgia are in the same condition. Of the remaining counties with extensive chestnut growth in the above states and in Tennessee and Kentucky, sixty-nine have from thirty to seventy-nine per cent of the chestnut trees infected; sixty-two have ten to twenty-nine per cent infected; and twenty-three have less than ten per cent.

As the rate of killing varies in different parts of the same region, the department advises all owners to ascertain the present condition of their chestnut, especially if it is suitable for poles. Some large pole-buying companies discriminate against poles cut from badly blighted trees, and most of them will not accept those cut from trees killed by the blight. Consequently, many owners who have failed to cut before the blight has seriously attacked or killed their trees are suffering considerable losses. At the present time many stands suitable for poles should be cut promptly to prevent loss, while others can be left for several years without danger.

Stands of chestnut suitable for lumber need not be marketed so quickly, because killing does not decrease the value of these trees so rapidly as it does trees suitable for poles. The blight fungus, itself, does not decrease the strength of the wood but decay-producing fungi, which enter the wood immediately after the death of the tree, decay the bark and the sapwood in a few years.

Grazing Fees Revised on National Forest Ranges

The effort to obtain an equitable readjustment of the grazing fees on range lands in the National Forests, which has extended over the past six years, has just culminated in an announcement by the Forest Service, with the approval of the Secretary of Agriculture, of a final schedule of fees to apply on all forests in the western districts during the current ten-year period.

After the results of a careful appraisal of forest ranges had been submitted by the Forest Service to the Secretary of Agriculture, Dan Casement, a Kansas and Colorado stockman, was appointed by Secretary Jardine to make an independent study of the schedule of fees recommended by the Forest Service. Mr. Casement's study extended over a period of six months, at the conclusion of which he recommended the approval of the methods used and a twenty-five per cent reduction in the increases in fees as originally proposed. Upon receipt of his report and recommendations, which were approved by the Forest Service, Secretary Jardine, in order to obtain the views of the stockmen, held a conference with representative stockmen at Salt Lake City, January 25, 1927.

After a thorough discussion of the whole question, the Secretary announced his decision approving Mr. Casement's findings and directing that twenty-five per cent of the increase in fees in the new schedule would go into effect January 1, 1928, and an equal amount each succeeding year until 1931, when the full schedule would be in effect.

Government Awarded Fire Claim

The United States Court for the Northern District of California, at Sacramento, recently rendered a decision in favor of the United States against the Feather River Lumber Company, of Portola, California, for fire damage to timber and young growth on the Plumas National Forest. The damage resulted from a fire occurring along the right-of-way of the company's logging railroad. The court allowed the Government \$41,575.

In rendering the decision in favor of the Government, Judge Kerrigan stressed the fact that the company had been negligent in not clearing its right-of-way after express warning, had no spark arresters on its engines and had sanded out the engines under conditions of fire hazard.

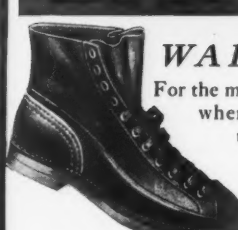
Judge Kerrigan's decision is important in several particulars. First, he established the right of the Government to claim damages for destroyed young growth. Secondly, the value of the young growth may properly be based on the cost of replanting the burned area. This decision gives the replacement theory legal status. Thirdly, that oil-burning engines are capable of starting fires along right-of-ways.

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Vermont Has New State Forest

Former Governor Redfield Proctor, of Vermont, recently presented to the state nine hundred acres of land along the Gulf Highway, to be administered as a state forest. The deed to the state prohibits the cutting of timber within sight of the highway, except occasional trees which might endanger travel on the highway. The deed further states that no commercial establishments or advertising signs shall be permitted on the forest.

In presenting the land to the state, the former state executive declared that it was his desire to have the land within sight of the highway preserved as nearly as possible in its natural condition, without disfiguration by signs or buildings, or other evidence of the use of man. Commissioner of Forestry Robert M. Ross stated that this gift brings the number of state forests in Vermont up to seventeen, with a total area of 32,435 acres.

Timber Production Sought in Purchase of National Forest Areas

Stimulated timber production through the determination of the best principles of forest management in the region and demonstration of their application to specific areas of land in Federal ownership will be the principal objective of the United States Forest Service, in undertaking the administration of the two new areas just approved for purchase in the upper peninsula of Michigan.

The National Forest Reservation Commission on February 18 approved the establishment of the two new purchase units, under the provisions of Section 6 of the Clarke-McNary law, with a view to the ultimate acquisition of all lands within the area which are suitable for National Forest purposes. One of these is the Marquette area, situated in Chippewa County, about thirty miles west of Sault Ste. Marie. The other is known as the Mackinac area, about ten miles south of Munising, in Delta, Schoolcraft and Alger Counties, Michigan.

In the Marquette unit, the purchase of 250,000 acres is contemplated. This area surrounds the Marquette District of the present Michigan National Forest, and its acquisition will shape this into a more practicable administrative unit. The area is drained by the Pine River, flowing into Lake Huron, and the Park and Waishka Rivers which flow into St. Mary's River, connecting Lake Superior and Lake Huron.

In the Mackinac unit the purchase of 150,000 acres is proposed. The region is drained by the Sturgeon, Whitefish and West fork of the Manistique Rivers, and the contemplated reforestation of the area is expected to influence favorably potential power development. Less than three per cent of the area is or has been in cultivation or within fenced pastures. The farming popu-

lation of the region has been decreasing along with the depletion of the timber supply.

While the volume of timber these areas ultimately will produce will be important, their major value will lie in the opportunity they will afford for forest research and experimentation, and for large-scale, practical demonstrations of the best methods of forest management within the regions of which they are parts.

Reed Appointed Industrial Forester for National Lumber Manufacturers Association

Franklin W. Reed, of Washington, D. C., has been appointed Industrial Forester for the National Lumber Manufacturers Association. He will undertake immediately a study of the part the lumber industry is playing in industrial forestry, with a view of furthering this work.

In making this study, Mr. Reed will visit the major forestry projects of the lumber and pulpwood industry. His findings will be published in pamphlet form for distribution among the industry, and he will also prepare articles for publication in forestry and lumber trade papers and journals. According to the National Lumber Manufacturers Association, this survey is necessary because of the great interest on the part of the lumber industry in industrial forestry and its possibilities.

Mr. Reed was graduated from Harvard University and the Biltmore Forest School, and received his early forest training with the United States Forest Service. For five years he was District Forester of the Eastern Division of the Forest Service, with headquarters in Washington, D. C. For the past four years he has been associated with Benedict and Rue, forest engineers, of Washington, in the appraisal, promotion and sale of forest lands, and management of these lands on an industrial forestry basis.

Mr. Reed is a member of the Society of American Foresters and the American Society of Engineers.

California Reduces Fire Loss

Timber losses from forest fires in California in 1927 were reduced to a new low mark, according to Fred G. Stevenot, director of the State Department of Natural Resources. In his report the loss was placed at \$132,087. Of this amount, \$107,150 represented the forest-fire loss in National Forests and \$24,937 the damage to timber and reproduction in State protected areas.

Total damage caused by brush, grass and grain fires, together with timber fires, aggregated \$1,133,244. The losses were as follows: State protected area, \$574,529; National Forests, \$133,210; districts protected by counties and associations under cooperative agreement, \$314,938; other cooperative agencies, \$308; unprotected areas, \$110,257.

Conservation Bills in Congress

While none of the major conservation measures have been passed so far in the Seventieth Congress, most of them are in good shape. As was expected, the House Committee on Agriculture, after a few minutes' hearing at which only Congressman Woodruff was called to appear, reported the McNary-Woodruff bill with an amendment cutting down the program to two years at \$2,000,000 a year. This is in accordance with the budget recommendation. At Mr. Woodruff's request the Senate bill, S. 1181, was reported instead of his draft, H. R. 357. Efforts are being made to secure special consideration of this bill in the House, otherwise it will probably not be passed before April 1.

The McNary-McSweeney Forest Research bill came up for hearing before the Senate Committee on Agriculture and Forestry, February 28. The hearing was brief, but it is understood that the Senate committee will report the bill favorably with slight amendments which strengthen it. The Bureau of the Budget has indicated that it is not in conflict with the President's financial program, which is a considerable victory in itself. At the time this was written, the House committee has given four days' hearing to the bill, but has not reported it. Among those who testified before the two committees were: Jacob M. Dickinson, president of the Izaak Walton League, Chicago; O. M. Porter, secretary of the American Paper and Pulp Association, New York; J. M. Macfarlane, president, Utah Cattle and Horse Growers' Association; Colonel Joseph Hyde Pratt, executive secretary of the Southern Forestry Congress; Colonel W. B. Greeley, Chief, United States Forest Service; W. R. Brown, of the Brown Company, Berlin, New Hampshire; Fred Brenckman, Washington representative of the National Grange; Samuel T. Dana, of Ann Arbor, Michigan, representing the Society of American Foresters; E. N. Wentworth, of Chicago; Dr. Charles H. Herty, of the Chemical Foundation, New York; Elbert H. Baker, of Cleveland, American Newspaper Publishers' Association; Shirley W. Allen, Forester of the American Forestry Association; Wilson Compton, of the National Lumber Manufacturers' Association, and a large number of congressmen. There was no opposition to the bill at the hearings.

Senator King's Bear River Migratory Bird Refuge bill has been passed by the Senate, and it is understood that a companion measure by Congressman Colton, of Utah, is being considered by the House Committee. The Migratory Bird Refuge bill is on the Senate calendar, but has not yet been acted upon. As special order, it is expected to come up after Muscle Shoals is disposed of. The companion measure in the House is not yet out of committee.

The Agricultural Appropriation bill passed the House on March 3. A cut of

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\$100,000 in the cooperative fire protection item which had been made by the Appropriations Committee was restored upon amendment offered by Congressman Leavitt. This puts into the bill an increase of \$200,000 over last year, or a total of \$1,200,000 available for this purpose. A splendid attempt by Congressman Englebright, of California, was made to secure approval of an amendment adding \$30,000 to the forest insect investigations item. A number of congressmen spoke in favor of the amendment, but it was lost. A budget recommendation for a \$14,000 increase in range investigations and \$10,000 for a study of marginal lands was made, but disapproved by the committee. Both were lost in the bill as passed by the House. The Senate Committee is expected to take the bill up during the week of March 11. Forest research items in the bill will be brought to the attention of the Senate Committee by a group of agricultural associations interested in research and which have followed through all of the agricultural research items from budget to committee.

The forest acquisition item under the Weeks and Clarke-McNary Laws stands at \$1,000,000 in the Agricultural Appropriations bill, but is made available immediately upon passage of the bill.

No agreement has been reached by either House or Senate on final form of the Flood Control bill, and there is danger that no serious mention will be made of forests as a means of flood control.

There has been no action on Congressman Winter's or Congressman Leavitt's Winter Elk Range bills, nor on the proposed Ouachita National Park.

Florida Names Harry L. Baker State Forester

Harry Lee Baker, of the United States Forest Service, has been named State Forester for Florida, following a meeting of the Florida Board of Forestry at Jacksonville, late in February.

The Florida Board of Forestry was created in June, 1927, by the state legislature, which also passed a bill for the employment of a state forester, to be selected by the board. Twenty-five thousand dollars was appropriated for the next two years in carrying out a forestry program in the state.

Mr. Baker, who has been making an investigation of forest-fire conditions in the south for several years, is ably fitted to carry out the forestry work in Florida. In 1926 he made a comprehensive study of fire conditions in that state in cooperation with the Florida Forestry Association, and published his findings in a pamphlet entitled, "Forest Fires in Florida." Previous to that he made special fire studies in Mississippi and Oklahoma.

Mr. Baker was graduated from Michigan State College in 1911, and served with the

Forest Service in Montana until 1922. He resigned as supervisor of the Cabinet National Forest to become a District Forester with the Virginia Forest Service. In 1924 he became Assistant State Forester of North Carolina. He returned to the Forest Service in 1925 to make a comprehensive fire study of the south.

White Pine Blister Rust Quarantine Amended

As a result of the advance of the white pine blister rust, the United States Department of Agriculture has announced an amendment to Federal Quarantine No. 63, adding Idaho and four counties in Oregon to the territory designated as infected. The amendment became effective March 1, 1928.

This extension of territory is based on infections discovered on currant and gooseberry leaves at more than twenty new points in Oregon and eastern Washington and at one point in northern Idaho. The entire State of Washington has already been classed as infected.

New Jersey Seeks to Acquire 200,000 Acres

The New Jersey Legislature is wrestling with a bill which would provide authority to levy a one-quarter mill tax for three years to provide for state forests. The tax would apply to real and personal property in municipalities. The money will be paid into a fund known as the "Forest, Park and Reservation Fund."

It is interesting to note in the arguments advanced for this legislation, many of the same difficulties which the Federal Government meets in its acquisition work through meager annual appropriations. State Forester C. P. Wilbur points out that land can be bought at the present time reasonably, and that the buying in large areas will reduce the overhead expenses of survey and title examination.

The general program proposed would include one large area of fifty thousand acres or more, and several smaller ones of five thousand acres or more in North Jersey, and a similar distribution of areas in South Jersey with a larger acreage in the main tract.

The Forestry Division of the New Jersey Department of Conservation and Development produces a splendid reason for purchasing more state forests in its report for the past fiscal year. The report shows that eighteen per cent of the total cost of the present state forests has been paid for by income derived from the tracts themselves.

While the bill proposes a direct tax and is somewhat unusual in this particular, strong hope is entertained for its passage during the present session of the present legislature.

Robins and Ruminations

(Continued from page 208)

He beamed with happiness when the first tiny bluish body had pecked through a shell, and he began digging worms which the mother robin learned to look for in the fresh upturned soil. The father bird would have nothing to do with him, finding his own food, ignoring Don in a pointed fashion which clearly bespoke his resentment at this intrusion into his family affairs.

It wasn't long until the nest was filled to overflowing. During the last two or three days in which those baby birds occupied the nest, they grew so rapidly that they threatened to burst out the side of their home.

I don't think Don made his appearance at home at all for lunch the day the first bird left the nest. We saw this youngster spraddle awkwardly out of the nest upon the tree limb and stand, wabbling and weaving back and forth on its unsteady legs. We put in much time, Don and I, noting the first flying efforts of the young robins. While exploring about, one of them slipped, but instead of "plunking" to the ground, as we held our breaths in dismay, this bird flapped its immature wings desperately and landed in a bush twenty yards from the tree. A day or two later, Don told me about another one which had teetered about with wings half spread for minutes at a time.

But it never got up sufficient nerve, while Don looked on, to fly out into the world.

One dewey morning one of the birds leaped into space and flew away. It was flapping uncertainly, yet determinedly, over the church on the other corner of our block the last we saw of it. The next morning another was gone and the father bird failed to show up. The two remaining young birds and the mother remained with us, in and about the tree and yard, until the children were as large as the mother.

That was several years ago. Quite recently that little drab lady wrote me a letter. It was a wonderful letter, full of her son, Don, who now holds a chair at one of our great eastern seats of learning and is a recognized authority on biology and bugs, birds and beasts.

What became of "Windy" Wassop? The egg-collecting habit seems to have grown on him as he matured into manhood. He acquired a seat on a board of trade and collected hen's eggs. His operations spread, and he bought eggs in such vast quantities that he almost had a corner on the market. Almost, but not quite, and the smashing of those bird eggs in that ash barrel years and years ago was not a faint prairie night wind whisper to the crash he made in Wall Street when the break in the market came.

I guess that ancient Scotch philosopher, the unknown author of my opening words, as prairie children used to say, "sabad his stuff."

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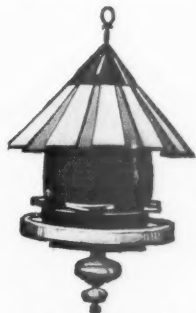
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Heads Predatory Animal Control

Stanley P. Young, of Colorado, has been appointed head of the division of economic investigations of the United States Biological Survey, in charge of the rodent and predatory animal control. He succeeds Dr. A. K. Fisher, who will be assigned to scientific research work in economic ornithology, his future activities to be confined chiefly to studies of the economic status of hawks and owls.

Mr. Young, who has served as assistant head of the division for more than a year, graduated from the University of Oregon in 1911, and took post-graduate work at the University of Michigan. He was first employed by the Survey in 1917 as hunter of predatory animals in Arizona. Dr. Fisher has been a member of the staff of the Biological Survey since 1885, when the branch of the department was established.

To Sell Oregon Timber

Due to the recent cancellation by the Government of the Herrick contract, 870 million feet of western yellow pine in Grant and Harney counties, Oregon, will be resold, according to the United States Forest Service. Re-advertisement of this unit, within the Malheur National Forest, began on January 30.

This unit of western yellow pine was sold five years ago to Fred Herrick, whose contract was recently canceled by Chief Forester William B. Greeley. The area contains 67,400 acres and has an estimated stand of 770 million feet of western yellow pine and 120 million feet of other species. It is the largest body of western yellow pine ever sold by the Forest Service.

This sale is part of a very large body of timber estimated to be more than five billion board feet. Forest officers point out that the sale is a good example of the forestry principle of sustained yield, since it will provide for the cutting annually of sixty million feet over a period of sixty years, at the end of which time the timber lands first cut over will be ready for a second cut. This will be possible through the reservation and protection of immature timber in the forest at the time of the first cutting, which will be of merchantable size at the time of the second harvest.

Tree Distribution in Kentucky

One hundred thousand two-year-old tree seedlings for reforestation and watershed protection are ready for spring shipment by the Kentucky Forest Service. Most of these trees are red and white oak, white ash, locust and black walnut. In addition, six thousand ash, maple, elm and hackberry are ready for planting along highways and on school and other public property. These trees are transplanted stock averaging from four to six feet in height.

Long-Bell Adopts Permanent Logging Plan in California

Definite plans to place its 150,000 acres of timber land in Siskiyou County, California, on a permanent crop basis, have been put into effect by the Long-Bell Lumber Company. In accordance with the plans no tree will be cut under an eighteen-inch diameter limit, and a forester will direct selective logging methods. Logs will be transported to the mills by a Caterpillar tractor instead of by steam skidders, thus saving many young trees from damage and destruction.

A nursery will be established at Tennant, California, and will be devoted to growing valuable pines. The company already maintains a nursery for Douglas fir and other trees of the Pacific Northwest at Ryderwood, Washington.

Reforestation practice in the way of proper disposal of slash after logging, intensive fire prevention methods and a system of direct seeding are included in the plans.

Heads Western Branch of National Lumber Association

Winfield Scott has been appointed director of public relations for the Western division of the National Lumber Manufacturers' Association, with headquarters at San Francisco, California. The territory includes California, Oregon, Washington, Idaho, Montana, Utah, Nevada, Arizona and British Columbia.

For the past three years Mr. Scott has been connected with the California Redwood Association and the California White and Sugar Pine Manufacturers' Association.

Growing Trees in Louisiana

A section of a tree which might have rivaled Jack's beanstalk for rapid growth has been sent to the United States Forest Service as evidence of the possibilities of pine timber growing on farm woodlands in the south.

The tree, a loblolly pine, grew on an abandoned field in the Red River Valley in central Louisiana. It is known that the field was in cultivation in 1911.

This tree grew so fast that in ten years its trunk, at a point about twelve feet above the ground, reached a diameter of fifteen inches. Thus it increased an average of one and one-half inches in diameter each year. Such growth, of course, is exceptional, and the wood from such a tree is liable to be too punky for the ordinary uses to which loblolly pine is put. The loblolly pine, however, has the reputation of being a very fast-growing tree in the south.

1927 INDEX AVAILABLE

The 1927 Index to AMERICAN FORESTS AND FOREST LIFE may be obtained by writing American Forestry Association, Lenox Building, Washington, D. C.

Discuss Relation of Wood Utilization to Reforestation

Wise use of forest products is an essential part of any national scheme of reforestation, according to open letters exchanged between Colonel W. B. Greeley, Chief Forester of the United States Department of Agriculture, and Axel H. Oxholm, Director of the National Committee on Wood Utilization of the Department of Commerce.

Mr. Oxholm wrote to Colonel Greeley to ask his cooperation in making it clear to the public that increased utilization of wood, not its decreased use, is essential to forest perpetuation. He stated his position in regard to the relation of utilization to forest perpetuation under ten headings, emphasizing the idea that there is a tendency on the part of the public to confuse the uses of commercial forests with those of parks. This idea results sometimes in a feeling that all forests are to be preserved in a park-like manner instead of being maintained as sources of indispensable materials.

Colonel Greeley replied at length, setting forth that industrial reforestation is an economic enterprise, and that if forest growing cannot be made to pay, forests will not be "widely and generally produced." Wise use of forest products, not hoarding of the forests, is indicated as the way to the perpetuation of commercial forests. At the same time, Colonel Greeley points out that if use of timber does not result in replacement, the wood supply candle will be burned at both ends.

Commercial Forestry Conference in Wisconsin

The first regional commercial forestry conference to be sponsored by the Chamber of Commerce of the United States, following the National Conference at Chicago, was held at Milwaukee, Wisconsin, March 28 and 29, jointly with the Milwaukee Association of Commerce. The first day was devoted to the land and forest situation in Wisconsin and fire protection and suppression, while commercial forestry, forest utilization and forest taxation were discussed the second day.

Historical Trees of New York

Historical trees of New York are being featured in a most unique and instructive calendar prepared and distributed by the Federated Garden Clubs of New York State. Twelve of the most famous trees in the state are pictured, and a brief outline of their history is given. Some of the trees included are the Stanwix Sapling, from which the American flag was flown at the time Ft. Stanwix was taken by American troops in 1776; the Witenagmont Oak, the famous council tree of peace; General Lafayette Tree; the Cedar of Lebanon; and the Wykaska Walnut.

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National Park Service Conference

The forestry session of the National Park Service Conference was recently held at the University of California, at Berkeley. The meeting featured programs of general forestry and forest fire protection. Among the speakers were Dr. W. W. Campbell, President of the University of California; Walter Mulford, Dean of the Division of Forestry, University of California; M. B. Pratt, State Forester for California, and Dr. E. P. Meinecke, United States Bureau of Plant Pathology.

Bulletin Records Returns From Banded Birds

Returns from banded birds received by the United States Biological Survey during the two-and-one-half-year period, July 1, 1923, to December 31, 1926, numbered 10,388, as compared with 1,746 in the three and one-half years from January 1, 1920, to June 30, 1923, according to Frederick C. Lincoln, associate biologist in charge of bird banding. A statistical bulletin has just been compiled showing the remarkable growth of activity in the banding method of ornithological research and the increase in accomplishments of the thousand or more volunteer bird-banders who are cooperating with the bureau. Since the bird-banding work was taken over by the Biological Survey, nearly 270,000 birds have been banded, 234,692 of these during the period covered in the current report.

Students interested in this method of investigating the habits of birds, says Mr. Lincoln, will be aided by these records. The time is not far distant, he declares, when it will be possible to prepare reports concerning the migratory and other habits of

certain individual species, based largely or wholly on bird-banding data. This method of study aids the solution of problems dealing with life histories and economic relations, as well as with feeding ranges, permanency of matings and consequent genetic matters, and the dispersal of young birds and its bearing upon distribution and extension of range or species.

That Petrified Forest in Texas

Several months ago there was published in these columns a brief story about the discovery of a remarkable petrified forest in Texas. The information came from the *New York Museum Biological Bulletin*, and the story created wide interest, mostly of a skeptical nature. Numerous letters were received from Texas ridiculing the idea of a petrified forest in that State and asking to be shown. The editors were considerably embarrassed in not being able to supply more specific and confirming information. The United States Forest Service, however, undertook to verify the story and, in its Bulletin of January 16, it published a letter from Howard A. Epperson of Martha, Texas, who is familiar with the region in which the petrified forest is reputed to exist. Mr. Epperson's letter is as follows:

"There is in Brewster County, Texas, the remains of an extensive petrified forest. In company with the late George B. Sudworth, I made an estimate of the largest stump we found. Our estimate, while not absolutely correct, is near enough for all practical purposes. We estimated the stump to be forty feet, eight inches in diameter where it projected through the deposit of volcanic ash and about fifty feet in diameter at the roots. The roots of the tree we estimated to be at least 150 to 200 feet below the exposed part. There are quite a few other stumps exposed but none as large as the one we measured.

"The tree mentioned by Dr. Gaither in the *New York Museum Biological Bulletin* of September, 1926, I have never found, but I think that Dr. Gaither found the impression left by three trees in a limestone deposit. These trees had fallen, the first knocking down the third, thus making what now looks to have been one tree of 700 or 800 feet length.

"Just how large an area was covered by this petrified forest I have never had time to discover as it was only a side issue with me and I did not have the time necessary to make an intensive survey. The trees are about 120 miles from the railroad and two miles from the Rio Grande, close to Santa Helena and about sixteen miles from Terlingua. The Chisos Mountains lie about twenty miles to the east. Five miles west and south occurs the great fault known as the Santa Helena, one of the largest faults in Texas. The remains of sea bed are easily traced and heavily fossilized strata are found everywhere in the vicinity.

"I would very much like to see or help to make a more comprehensive survey of this locality."

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Ask the Forester ?

Each Month Forestry Questions Submitted to the Association Will be Answered in This Column. If an Immediate Reply is Desired a Self-Addressed, Stamped Envelope Must Accompany Letter.

QUESTION: What is the accepted theory for the absence of forests in the prairie region of the United States?—*P. M., District of Columbia.*

ANSWER: No one theory is universally accepted. Some of the more plausible ones are: rapid drainage at the close of the ice age; severe series of forest fires; overgrazing by vast herds of wild animals; and the general prevalence of loess soils. A very good article on this subject will be found in the December 30 issue of *Science*, in which the statement is made that, "It is doubtful if this theory (rapid drainage) or any other, relying on a single factor, can explain very extensive grassland areas either in the middle west or elsewhere." The article goes on to say that the development of treeless areas often occurs in arid or semi-arid regions, or where in regions, even with abundant rainfall, the water table is low because of free subsurface drainage. If, in such circumstances a large number of grazing and browsing animals are present, trees have just that much harder time maintaining themselves. It is probable, too, that successive forest fires in early times may be charged with part of the responsibility.

QUESTION: Is it possible to grow longleaf yellow pine and the cypress successfully in Pennsylvania?—*G. S. W., Pennsylvania.*

ANSWER: No. Longleaf yellow pine is naturally a warm climate lowland species and the cypress of commerce (*Taxodium distichum*) reaches its best development in warm, swampy locations such as are found in the Coastal Plain in the South. It is possible that specimens could be grown if individual care was given them, but the chances are that they would freeze back.

QUESTION: What is the value of the annual output of forest products in North Carolina?—*H. M., North Carolina.*

ANSWER: Pine and hardwood lumber, naval stores, and pulp and fiber products total \$100,000,000 annually.

QUESTION: Has any state passed a law providing for the levy of a tax on real and personal property for the purchase of state forests and parks?—*D. H., Michigan.*

ANSWER: New Jersey now has such a measure under consideration in the State Assembly. The tax would be one-fourth mill on real and personal property in municipalities, and would be turned into a special fund for the purchase of state forests. The bill is still in the House. Most of the other states, in raising this kind of a fund, have passed laws authorizing bond issues.



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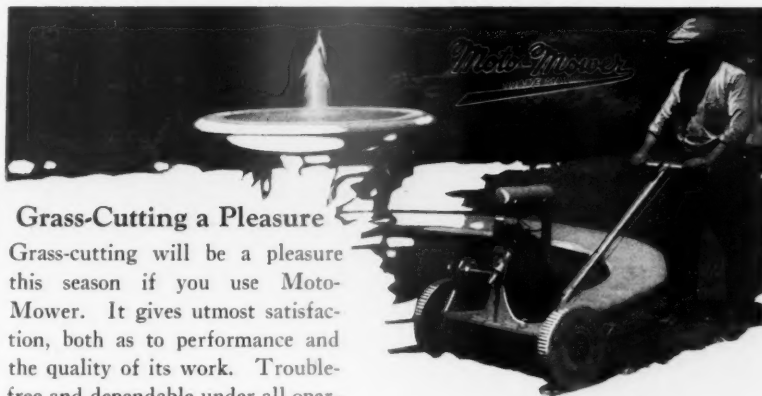
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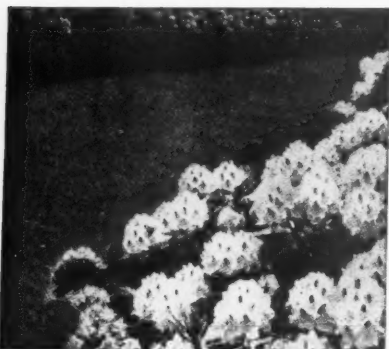
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ORIGIN OF ARBOR DAY

By May Teresa Holder

"Trees are the arms of Mother Earth lifted up in worship of her maker; where they are, beauty dwells."

The observance of Arbor Day, which is a very old custom, originated in the fifth century. It is recorded that the people of a little Swiss village wanted to have an oak grove in the public square of the town. So they set apart a day and asked all the men, women, and children on that day to go to the woods and dig up oak saplings and bring them to the village square to be carefully replanted. As a reward, each child taking part in the planting received a wheaten roll, and for the men and women a feast and frolic was held in the evening. Each year thereafter the anniversary of planting trees was fittingly observed by the Swiss villagers, and the custom soon spread elsewhere.

The first observance of Arbor Day in the United States was held in Nebraska in April, 1872, when more than 1,000,000 trees were planted. Other states soon followed. In some states the legislature has designated by law a certain date as Arbor Day, and in other states the day is set by a formal proclamation of the Governor.

Windbreaks and Shelter Belts for Maryland

The Maryland Department of Forestry has just published a bulletin on the subject of windbreak and shelter belts. It was prepared by Fred B. Trenk, Assistant Forester.

"Few people realize the value of windbreaks or shelter belts as a protection to homes, farm buildings, and field crops in exposed sections," says Mr. Trenk. A windbreak is defined as one or two rows of trees placed on the windward side of the

object to be protected, and shelter belts as several rows of trees, or a strip of woodland, for the same purpose. Windbreaks, he declares, exert a marked influence for a distance of twenty times the height of the trees. The direct results are protection from cold winds, making living conditions more comfortable; protection of stock, and prevention of damage to orchard, garden and field crops.

1927 Lumber Cut

The lumber production for 1927 of the organized portion of the American lumber industry was 14,279,520,478 feet, according to the National Lumber Manufacturers Association. This amount compares with 15,266,935,764 feet produced by about five per cent fewer reporting mills in 1927 than in 1926. Total shipments fell slightly under the production and sales were 14,184,528,898 feet, not including production used locally which probably exceeded three per cent or over 400,000,000 feet.

Lumber produced by the mills affiliated with the lumber association through the various regional associations produce about forty per cent of the whole output. Applying this percentage, the total lumber production for 1927 was approximately 35,000,000,000 feet, as compared with 36,936,000,000 feet for 1926 and 44,509,000,000 feet for 1909, the record year.

Forest Road Fund Apportioned

Apportionment of Federal forest road funds totaling \$7,500,000, among the States and Territories which contain National Forests, has been approved by Secretary of Agriculture Jardine. The funds were authorized by Congress in 1926 for appropriation for the next fiscal year which begins July 1, 1928.

Of the total of \$7,500,000, there was authorized \$4,500,000 for the Forest Highway Fund, to be expended in the construction and improvement of roads in and adjacent to the National Forests. \$3,000,000 was authorized for the Forest Road Development Fund, to be used in the construction and maintenance of roads required mainly for the development, protection and administration of the forests.

The States containing National Forests and the amounts apportioned to each state from the two funds for the next fiscal year are as follows:

Alabama, \$16,146; Alaska, \$490,844; Arizona, \$421,255; Arkansas, \$79,378; California, \$1,112,155; Colorado, \$577,063; Florida, \$35,539; Georgia, \$26,217; Idaho, \$1,151,800; Illinois, \$383; Kentucky, \$3,663; Maine, \$8,016; Michigan, \$5,078; Minnesota, \$60,648; Montana, \$680,151; Nebraska, \$5,775; Nevada, \$98,038; New Hampshire, \$39,722; New Jersey, \$1,231; New Mexico, \$329,498; North Carolina, \$47,212; Oklahoma, \$2,410; Oregon, \$1,074,899; Pennsylvania, \$12,100; Porto Rico, \$772; South Carolina, \$7,496; South Dakota, \$58,805; Tennessee, \$42,006; Utah, \$218,893; Virginia, \$43,539; Washington, \$633,879; West Virginia, \$26,641; Wyoming, \$287,764.

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9 to 15 in. X	5.00	45.00
Austrian Pine (<i>Pinus austriaca</i>)		
6 to 9 in. X	6.00	50.00
10 to 12 in. XX	30.00	225.00
Red Pine (<i>P. resinsa</i>)		
8 to 12 in. X 5-yr., heavy	10.00	70.00
Japan Red Pine (<i>P. densiflora</i>)		
18 to 24 in. X	15.00	80.00
White Cedar (<i>Thuja occidentalis</i>)		
6 to 8 in. X	8.00	70.00
Colorado Spruce (<i>P. pungens</i>)		
4 to 8 in. X	8.00	60.00

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5,000 " " 34.00 " "
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1 Forsythia—April	1 Snowberry—July
1 Red Stem Dogwood—May	1 Hydrangea H. S.—July
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1 Mock Orange—June	1 Butterfly Bush—Aug.
1 Deutzia Crenata—June	1 Desmondium—Sept.

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Fritz Returns to California

Emmanuel Fritz, who has been on sabbatical leave for one year, has returned to his duties as Associate Professor of Forestry in the University of California. This leave was spent in travel over the United States as Wood Technologist for the California White and Sugar Pine Manufacturers' Association and the West Coast Lumber Trade Extension Bureau. This work gave him an opportunity to study at first hand some of the problems of the lumber industry that affect the use of lumber and its profitable sale. Professor Fritz's courses at the university cover Wood Technology and Lumber.

Army Uses Short Lengths

Through the application of the short-length principle to Army specifications a thirty-five per cent saving in the cost of lumber for Army crating purposes has already been effected by the Washington General Depot. As a result of the work undertaken by the National Committee on Wood Utilization of the Department of Commerce to effect a closer utilization of short-lengths the Secretary of War's office called on the Committee to assist in the drafting of Army specifications covering box and crating material.

Heretofore, specifications called for lumber in lengths of sixteen feet, dressed four sides, but the Committee recommended lengths of four feet and up and dressed two sides, and in addition drafted new quality specifications which made this stock more useful to the consumers and easier for the producers to turn out.

Study Pulpwood Logging Methods

About one-fourth of the valuable young growth of spruce and balsam fir is usually destroyed in logging this timber for pulpwood in the Northeastern States, according to a recent survey and study by M. Westveld, acting director of the Northeastern Forest Experiment Station.

"There is need for more care in logging in order to protect reproduction of spruce and balsam fir which is already established," declares Mr. Westveld. His study of the reproduction of pulpwood lands in New England and New York, a region which uses two-thirds of the pulpwood produced in the United States, shows reproduction of spruce and balsam fir to be generally abundant at the time the mature timber is cut. However, some twenty-five per cent of this valuable young growth usually is destroyed in logging. Reduction of this damage to a low figure would leave the cut-over land stocked with a sufficient number of seedlings to insure a second crop of pulpwood timber, he declares.

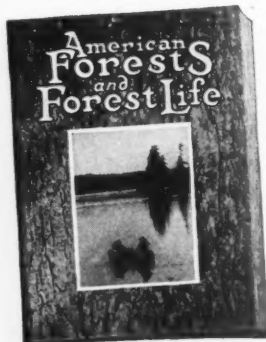
Deer Destroy Pennsylvania Tree Plantations

Ninety per cent of the 197,000 trees planted on the Moshannon State Forest, in Pennsylvania, during the past three years have been destroyed by deer, according to John W. Keller, chief of the State Bureau of Extension.

The plantations of Scotch pine showed forty per cent of the trees killed by deer, and fifty-five per cent so injured that it is doubtful if they will survive. Eleven per cent of the pitch pine plantations were killed and sixty-five per cent of the trees severely injured. Only trees planted in aspen and wild cherry thickets were undamaged, declares Mr. Keller.

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April, 1928

Who Eats the Pinons

A question that is often asked is what becomes of the large amount of pinons gathered in the Southwest during good crop years and shipped East. A recent issue of the *New York Times* states that "The main demand for pinons is found among the foreign-born population of New York's east side. This nut is a favorite with push cart peddlers. It is estimated that from fifty to one hundred carloads a year are thus re-tailed."

Forestry in Sweden

The annual growth of timber in Sweden's forests now exceeds the annual cutting by nearly 100 million cubic feet, according to a study of the Swedish forestry system by Trade Commissioner Emil Kekich, released by the United States Department of Commerce. This result, the report declares, has been accomplished through forestry practice making extensive areas more productive and through closer utilization, which has relatively reduced cutting.

Timber growing, it is pointed out, is without question the outstanding feature in the industrial economy of Sweden at the present time and it is constantly becoming of greater importance. Over one-half of the land area of the Kingdom is especially adaptable to forest growth, with the soil possessing little or no fertility as agricultural land. The bulk of the forests belongs to private owners, and the forest policy of the country has been essentially one of the economy of private holdings. The owners of these private forests are divided into two groups—the farmers, large and small, and large corporations which operate on large-scale forest methods.

Scientific forestry is not confined to the Swedish Government, the survey shows. Practically all the large lumber, paper and pulp corporations operate forest departments of their own which work in close harmony with the Royal conservation boards, the Government Forest Service and the colleges and schools. The Swedish Forestry Association is a body composed now of more than 4,000 members. Under its auspices, lectures are given, excursions into forests are conducted and periodicals and pamphlets relating to forestry are published.

The remarkable growth of the Swedish forest industry during recent years is evidenced by statistics of production and export. During the period, 1912 to 1925, lumber production practically doubled, having a value in the latter year of \$95,000,000. During the same period the value of wood pulp produced increased from \$25,000,000 to \$84,000,000, while production of paper rose from \$17,000,000 to \$50,000,000. Total exports of Swedish forest products in 1925, including lumber and other wood products, pulp, and paper products, reached a value of \$175,000,000 or approximately one-half of the entire exports of the country.

Will a Bear Stay Up a Tree?

The following item appeared in a recent issue of *Yosemite Nature Notes*:

"A group of nature students were crossing Yosemite Valley through the automobile camps when a camper attracted their attention to a black bear about forty feet up in a large yellow pine. According to the statements of nearby campers, this bear had gone up the tree the night before. A man and boy had slept beneath the tree, and apparently the bear had been afraid to come down. The consequent interest of campers which resulted in crowds gathering had continued to keep the bear treed. Thus, if the campers' statement can be believed, the bear had been in the tree since 10 o'clock the preceding evening and accordingly had had to make himself comfortable for more than twelve hours. As the party watched the bear they noted that he had become tired of standing on his feet on a limb and had seated himself on his haunches with the front feet grasping an upper limb. On returning to the spot an hour later the bear was still in the tree apparently taking a noon-day nap. Having searched out a large limb, he was lying flat on his stomach with his four legs hanging down on all sides. Unfortunately, it was not possible to see exactly how long the bear did stay in the tree. Hunger would eventually drive him down, but the main point is that black bears are fairly at home in trees, and by using a number of different postures they are able to make themselves comfortable."

Supervisors Named for Montana Forests

William M. Nagel, present supervisor of the Missoula National Forest, Montana has been assigned as supervisor of the Blackfeet National Forest, Montana. James F. Brooks will succeed Mr. Nagel as supervisor of the Missoula Forest.

Mr. Brooks entered the Forest Service in June, 1917, shortly after being graduated from the Forest School of the University of Montana. Since that time he has filled the positions of forest examiner and fire assistant on the Coeur d'Alene Forest, and assistant forest supervisor on the St. Joe Forest. Mr. Nagel entered the Service in June, 1914.



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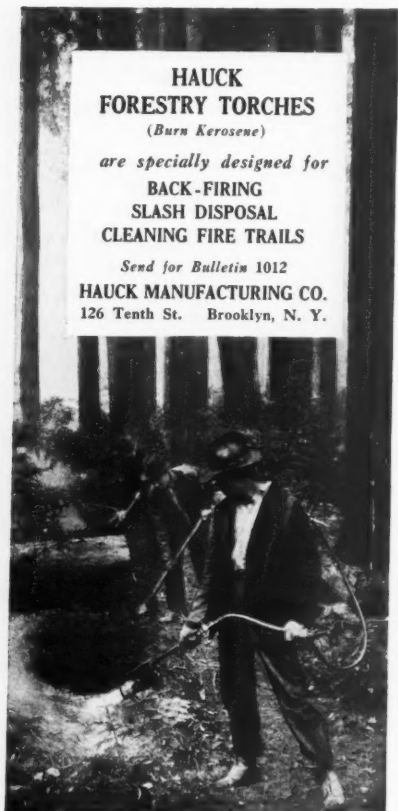
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Swedish Forester at Cornell

Lars G. Romell, of the Swedish Forest Experiment Station at Stockholm, has been appointed to the Charles Lathrop Pack Research Professorship in Forest Soils at Cornell University, Ithaca, New York. He will take up his duties April 1.

Mr. Romell will undertake to coordinate studies in several fields of science and apply all the obtainable and applicable knowledge to the special problems of forest soils. It will necessarily deal with the chemistry and biology of soils and will also have intimate relation with the study of heredity in tree growth, particularly as that study may help to solve problems of adapting certain varieties to given soils.

Mr. Romell graduated from the University of Stockholm, and has been connected with the Swedish Forest Experiment Station since 1918.

Portugal's New Law

By a recent decree it is forbidden to reduce the area of Portuguese forest unless a manifest advantage is to be gained by changing from forest culture to agriculture or by replacing one species with another. Clearings of certain species must be replanted within two years. No cutting can be done without a previous declaration of intention. By this law it is also forbidden to remove cork from trees of less than nine years' growth. Buyers of cork trees must declare to the department of forests and waters all the purchases which they have made of cork trees and where the trees are, when the cutting is to be made, or when the weighing will take place. Penalties of twenty-five to fifty per cent of the value of the material are provided for failing to comply with the law.

It is forbidden to destroy, without authorization, trees bordering streams which serve to fix the soil and protect it against erosion.

Reforestation in Brazil

The government of the State of Sao Paulo, Brazil, is becoming alarmed over the rapid destruction of the forests within the state, and has invested the Forest Service with police powers. The department was created in 1911.

According to the United States Department of Commerce, reorganization of the Forest Service in the South American country brings into effect a number of new laws pertaining to forest administration. The State of Sao Paulo will be divided into five forestry districts, within which the Forest Service will maintain nurseries for the distribution of young trees. Further, all owners of more than one hundred hectares of land on which forests exist are obliged to reserve for forest ten per cent of the total area, except in the case of land which is being reforested by spontaneous growth.



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*I think that I shall never see
A poem lovely as a tree.*

*A tree whose hungry mouth is
prest*

*Against the earth's sweet flowing
breast;*

*A tree that looks at God all day
And lifts her leafy arms to pray;*

*A tree that may in summer wear
A nest of robins in her hair;*

*Upon whose bosom snow has lain;
Who intimately lives with rain.*

*Poems are made by fools like me,
But only God can make a tree.*

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Certificates of Registration of Memorial Trees are furnished free to members of the Association. All requests for certificates should give name of individual or organization planting, date of planting, kinds of trees, and name of person in whose memory they have been planted.

The American Forestry Association
Washington, D. C.

Pennsylvania Establishes Seed Supply Station

The first of a series of forest tree seed supply stations established on the state forests of Pennsylvania has been completed in the Scotch pine plantation on the Mount Alto Forest, in Franklin County.

The trees on this plantation are twenty-one years old and are as thrifty and vigorous as any pine in the State, declares the State Department of Forests and Waters. They are straight and present a striking appearance when compared with those in the usual Scotch pine plantations where the trees have been developed from seed of doubtful origin or unknown ancestry.

One acre in this area has been designated "Forest Tree Seed Supply Station No. 1." The dead and suppressed trees were removed and 905 Scotch pines have been designated for removal under the thinning process, now in operation. The seed from this station will be distributed to nurseries throughout the State.

Report on Minnesota Forests

Reforestation of cut-over lands in Minnesota was the subject of a conference held at the Minnesota state capitol recently. The meeting was called by W. I. Nolan, Chairman of the Legislative Committee, which is preparing a report making recommendations to the next legislature. The committee already has made a tour of the affected areas and now is obtaining opinion of various groups and individuals.

The conference was attended by state, county and municipal representatives as well as organizations interested in forestry.

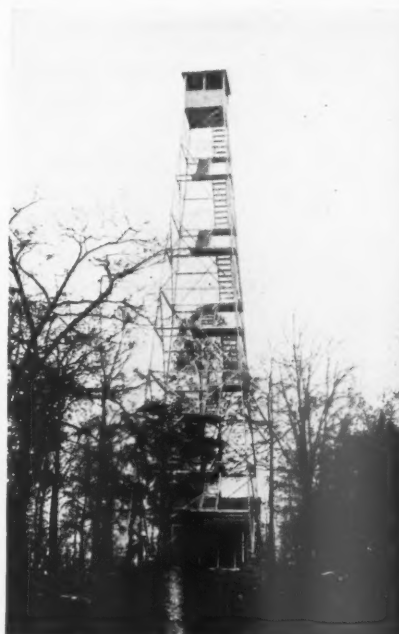
American Declaration of Forest Independence Urged

The United States must declare forest independence if it is to continue to be the world's champion wood user, says Dr. Raphael Zon, director of the Lake States Forest Experiment Station, St. Paul, Minnesota, and William N. Sparhawk, Forest Economist of the United States Forest Service, in a bulletin recently published, entitled "America and the World's Woodpile."

"A proposal that the United States abandon one-sixth of her territory to foreign powers would be met with instant and general disapproval," says the bulletin. "The American people would not hesitate to sacrifice millions of lives and countless treasure, if necessary, to prevent such a surrender. Yet practically as great a loss in national wealth and income would be suffered if all the privately owned forest land of the country were allowed gradually to lapse into an idle, unproductive condition—the actual condition of many thousand square miles today—and if the forests of other countries were called upon to furnish the wood that American forests have hitherto produced."

The new bulletin presents a brief and popular review of the forest resources and requirements of the United States and the other countries. Although the whole of North America contains only about nineteen per cent of the world's forest lands, the foresters point out, the United States is, and probably will continue to be, the world's champion wood user. This country now consumes as much saw timber as all the rest of the world combined, and of the world's total wood requirements, including saw timber together with firewood and similar small material, the United States takes two-fifths.

The United States must declare forest independence, the circular declares. The world's appetite for timber is growing, and competition, particularly for softwoods, will naturally become more intense as the needs of the consuming countries grow and as the reserves diminish. Of the 580,000 square miles of privately owned forest land in the United States, some 125,000 square miles already have ceased to be productive and a much larger area is producing only partial wood crops. The unproductive land is being abandoned, not because of any serious difficulty in keeping it productive, nor because the way to keep it productive is not known, but primarily because its owners doubt whether timber growing will pay. The authors of "America and the World's Woodpile," believe that timber-growing under proper forestry methods certainly can be made profitable.



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STUMPAGE PRICES.—Lowest rates considered \$2.80 per M for western yellow pine, \$1.05 per M for Douglas fir and \$.55 per M for other species. Rates to be readjusted on a date approximately three years from beginning of cutting and at three-year intervals thereafter.

DEPOSIT.—\$25,000 must be deposited with each bid, to be applied on the purchase price, refunded, or retained as liquidated damages, according to conditions of sale.

CONDITIONS.—Each bidder must submit with his bid a statement of his financial resources, including the funds available for use on this project, and, before final award, the person or company submitting the most acceptable bid will be required to show that he has immediately available or will have available as needed sufficient funds to provide the improvements, equipment and working capital necessary to enable him to meet the requirements of the agreement. The manufacture of the timber in or near Burns, Oregon, will be required. The conditions are given in full in the prospectus and sample contract.

FINAL DATE FOR BIDS.—Sealed bids will be received by the District Forester, Portland, Oregon, up to and not later than 2:00 P. M., June 1, 1928 and will be opened immediately thereafter.

The right to reject any and all bids reserved.

Before bids are submitted full information concerning the character of timber, conditions of sale, deposits, and the submission of bids should be obtained from the District Forester, Portland, Oregon, or the Forest Supervisor, John Day, Oregon.

Forest Economics for Oregon Schools

An outline of the "Economics of Forestry" has been prepared by the Portland, Oregon, office of the United States Forest Service for use in the high schools of Oregon. Special care has been taken to localize the treatment of the subject and to explain the organization and aims of the different forestry agencies. The outline is a revision of one, prepared last year at the request of an Oregon high-school principal, that was submitted for criticism to several cooperating agencies and was then tried out in two high schools. In its present form, which occupies thirty mimeographed pages, it has been sent out to each high school in Oregon.

Idaho School Distributes Trees

Almost half a million young forest and farm woodlot trees will be distributed among farmers of Idaho this year by the University of Idaho School of Forestry. The trees are made available to farmers interested in developing the farm forestry phase of their agriculture at considerably less than actual cost under provisions of the Clarke-McNary act. The School of forestry nursery has been greatly enlarged since last year to provide for an increased production. During 1927 about 150,000 trees were distributed from the nursery.

Of the trees available this year about 400,000 will be black locust. More than 30,000 conifers and approximately 30,000 trees for ornamental purposes will be distributed. At the average rate of woodlot planting, 1,200 trees to the acre, the university is distributing to farmers of the State this year enough trees to make 350 acres of farm woodlot.

In keeping with the national trend in farm forestry the university not only supplies the trees but assists farmers who take them for woodlots to institute proper farm forestry procedures. To give farmers instructions in proper woodlot culture is the principal task of the extension forester, who was added to the staff of the university last summer.

Washington Receives Funds From Forest Receipts

Twenty-five counties in Washington will receive a share of the \$152,300.34 which has been turned over by the Federal Government to the State Treasurer, as their part of the National Forest annual receipts for the fiscal year ended June 30, 1927. This is twenty-five per cent of the year's receipts from the ten National Forests located wholly or partly in Washington. The money is distributed to the counties for use on roads and schools.

Under the existing law, one-fourth of all National Forest receipts are returned to the state to be pro-rated among the counties on the basis of each National Forest in each county.

To Save Nevada Antelope

As a culmination of the efforts of wild life conservationists extending over a period of several years, a definite step has just been taken to preserve the remnant of the prong-horned antelope in Nevada and Oregon.

Following a national conference at Washington several months ago to consider means of saving these beautiful and hard-pressed animals in the semi-desert regions of the west, the National Association of Audubon Societies opened a campaign to establish by congressional action an antelope and sage hen reservation in southeastern Oregon. Since that time the State of Oregon has declared the killing of antelope in this region to be illegal, but as no wardens are available to enforce the regulation, conditions as far as the antelope are concerned remain virtually unchanged. Reports are current that wandering sheep herders and other travelers of the deserts continue to wipe out the small bands that still remain. Across the line in Nevada an exactly analogous situation exists, but it is here that a real reservation has been created.

According to Dr. T. Gilbert Pearson, president of the Audubon Association, the Last Chance Ranch in northern Nevada, containing 380 acres, has been taken over by the association for an antelope sanctuary. "It is hoped," declared Dr. Pearson, "this action will preserve the herd of antelope that still remains in northern Nevada."

New Administration Area For Palisades Park

The commissioners of the Palisades Interstate Park are developing a new administration area for the palisades section of the Park in New Jersey, at the top of the climb from the Alpine-Yonkers Ferry, 400 feet above the river. A new residence for the superintendent is nearly completed, and will be occupied in the spring. Work will also soon begin on a new administration building, to include police headquarters, court room and cell block, offices and drafting rooms for the engineering staff. The buildings are of the same type of construction as Bear Mountain Inn and other large structures in the Harriman section of the park, made of rough stone and chestnut logs stained brown.

New Hampshire's Town Forests

New Hampshire now has sixty-one town forests with a total area of 11,643 acres and an established value of \$826,000.

Some towns have purchased their forest land; others have received theirs from charter. These town forests are being reforested naturally and by planting of seedlings as rapidly as possible and are increasing in value from year to year. They now serve as recreational areas, but eventually will bring in a good income to towns or cities, helping to reduce taxes.

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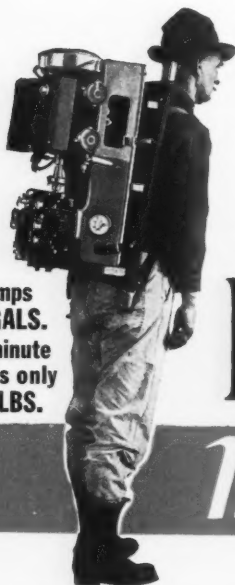
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